



# DISC MOWER

**AGM52, AGM62, AGM72,  
& AGM82 Disc Mower**

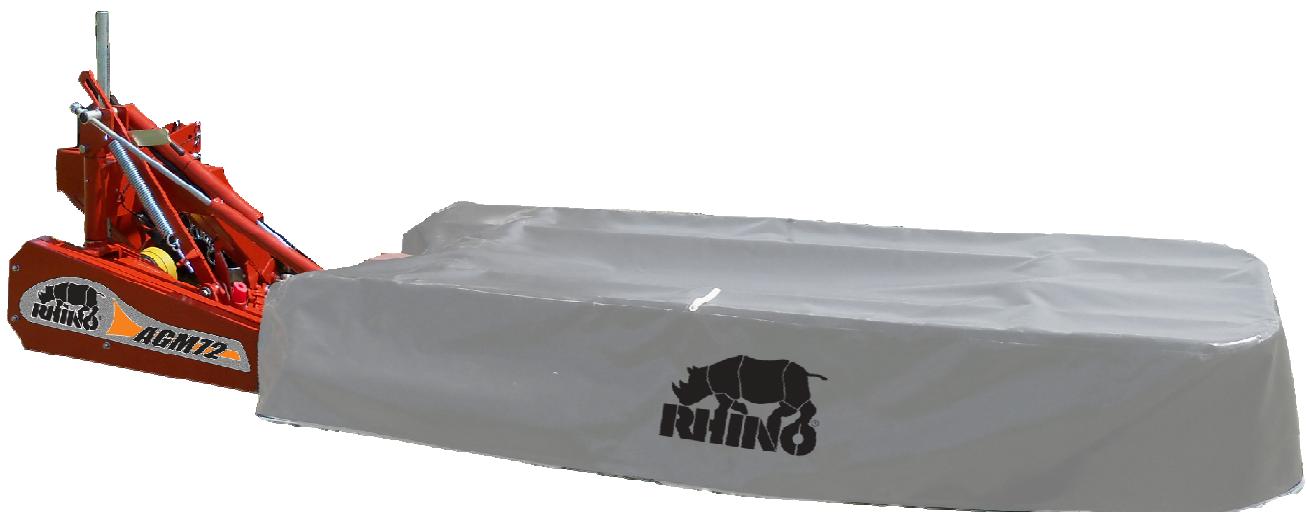
Published 10/10

Part No. 00787389

## OPERATOR'S MANUAL



This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the unit at all times. READ, UNDERSTAND, and FOLLOW the Safety and Operation Instructions contained in this manual before operating the equipment. C01- Cover



**RHINO®**

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\$0.00

## To the Owner/Operator/Dealer

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

BEFORE YOU START!! Read the safety messages on the implement and shown in your manual. Observe the rules of safety and common sense!



# DANGER

FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.

1.



2. NO RIDERS. NO CHILDREN OPERATORS.



3. USE SAFETY SHOES, HARD HAT, SAFETY GLASSES, SEAT BELTS, & ROPS.



4. BLOCK UP SECURELY BEFORE WORKING UNDER.



1. Study and understand Operator's Manual, Safety Signs, and Instructional Decals for tractor & disc mower to prevent injuries, alarms, & accidents. Practice before operating mower in a confined area or near passersby.

- Learn how to stop engine suddenly in an emergency. Be alert for passersby and especially children.
- 2. Allow no children on or near implements or tractor. Allow no riders on tractor or implement. Falling off can cause serious injury or death from being run over by tractor or mower or contact with Disc Mower Blades.
- 3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seatbelt fastened securely and snugly to prevent injury and possible death from falling off or tractor overturn. Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety Shoes, and Ear Plugs are recommended.
- 4. Block up or support raised machine and all lifted components securely before putting hands or feet under or working underneath any lifted component to prevent crushing injury or death from sudden dropping or inadvertent operation of controls. Make certain that area is clear before lowering or folding.
- 5. Before transporting, put lift lever in detent or full-lift position. Install Transport Safety Devices securely on folding implements. Slowdown when turning and on hillides.
- Install Regmator or folding circuit to slow down lowering and unfolding if action is faster than is desirable.
- 6. Make certain that SMV sign, Warning Lights, and Reflectors are clearly visible. Follow local traffic codes.
- 7. Never operate with Disc Mower or Folding Screen raised if passersby, bystanders, or traffic are in the area to reduce possibility of injury or death from objects thrown by blades under Screens or implement structure.
- 8. Before dismounting, secure disc mower in transport position on ground.
- Put tractor in park, set break, disengage PTO, stop engine, remove key, and wait until noise of rotation has ceased to prevent entanglement in rotating parts which may cause injury or death.
- Never mount or dismount a moving vehicle. Crushing from runover may cause injury or death.

5. TRANSPORT SAFELY, LOCK UP.



6. USE SMV, LIGHTS, & REFLECTORS.



7. DO NOT OPERATE WITH MOWER OR WING RAISED. DO NOT MOUNT OR DISMOUNT WHILE MOVING.

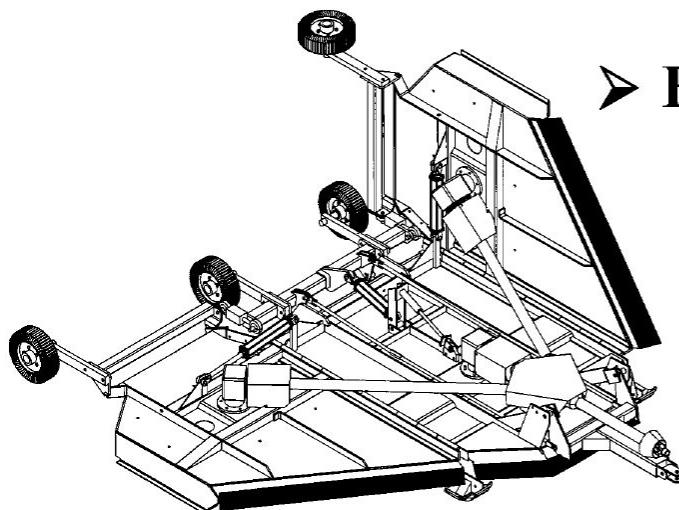


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### WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it to within 30 Days. Make certain the Serial Number of the Machine is recorded on the Warranty Card and on the Warranty Form that you retain.

➤ BE SAFE!



➤ BE ALERT!

➤ BE ALIVE!

➤ BE TRAINED  
before operating  
the Mower!



**M&W**



## *Safety Training Makes the Difference*

In order to reduce accidents and enhance the safe operation of mowers, *Alamo Group Ag Division*, in cooperation with other industry manufacturers has developed the AEM/FEMA Industrial and Agricultural Mower Safety Practices video and guide book.

The video will familiarize and instruct mower-tractor operators in safe practices when using industrial and agricultural mowing equipment. It is important that Every Mower Operator be educated in the operation of their mowing equipment and be able to recognize the potential hazards that can occur while operating a mower. This video, along with the mower operator's manual and the warning messages on the mower, will significantly assist in this important education.

Your Authorized *Rhino* Dealer may have shown this video and presented you a DVD Video when you purchased your mower. If you or any mower operator have not seen this video, **Watch the Video, Read this Operator's Manual, and Complete the Video Guidebook** before operating your new mower. If you do not understand any of the instructions included in the video or operator's manual or if you have any questions concerning safety of operation, contact your supervisor, dealer or *Alamo Group Ag*.

If you would like a VHS video tape of the video, please email [AEMVideo@alamo-group.com](mailto:AEMVideo@alamo-group.com) or Fax AEM VHS Video at (830) 372-9529 or mail in a completed copy of the form on the back of this page to AEM VHS Video 1502 E Walnut Street, Seguin, TX 78155. and request the VHS video version. Please include your name, mailing address, mower model and serial number.

Every operator should be trained for each piece of equipment (Tractor and Mower), understand the intended use, and the potential hazards before operating the equipment.

**Alamo Group Ag. Division is willing to provide  
one (1) AEM Mower Safety Practices Video**

Please Send Me:  VHS Format – AEM/FEMA Mower Operator Safety Video

DVD Format – AEM/FEMA Mower Operator Safety Video

Mower Operator's Manual

AEM Mower Operator's Safety Manual

Requester Name

Phone:

Requester Address:

City

State

Zip Code

Mower Model:

Serial Number:

Date Purchased:

Dealer Salesperson:

Dealership Name:

Dealership Location:

Mail to:

AEM Video Services

1502 E. Walnut Street

Seguin, TX 78155

Or Fax to:

(830) 372-9529

Or Email to:

AEMVideo@alamo-group.com

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# **1. SAFETY SECTION**

Safety Section 1-1

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# SAFETY

## General Safety Instructions And Practices

A careful operator is the best operator. Safety is of primary importance to the manufacturer and should be to the owner/operator. Most accidents can be avoided by being aware of your equipment, your surroundings, and observing certain precautions. The first section of this manual includes a list of Safety Messages that, if followed, will help protect the operator and bystanders from injury or death. Read and understand these Safety Messages before assembling, operating or servicing this Implement. This equipment should only be operated by those persons who have read the manual, who are responsible and trained, and who know how to do so responsibly.



The Safety Alert Symbol combined with a Signal Word, as seen below, is used throughout this manual and on decals which are attached to the equipment. The Safety Alert Symbol means: "WARNING! BECOME ALERT! YOUR SAFETY IS INVOLVED!" The Symbol and Signal Word are intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this equipment.

Practice all usual and customary safe working precautions and above all---remember safety is up to YOU. Only YOU can prevent serious injury or death from unsafe practices.



Indicates an imminently hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, MAY result in MINOR INJURY.



Identifies special instructions or procedures that, if not strictly observed, could result in damage to, or destruction of the machine, attachments or the environment.

**NOTE:** *Identifies points of particular interest for more efficient and convenient operation or repair.* (SG-1)

READ, UNDERSTAND, and FOLLOW the following Safety Messages. Serious injury or death may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards. (SG-2)



Si no lee inglés, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3)



# SAFETY

## Operator Safety Instructions and Practices

### **WARNING**

The rotating parts of this machine continue to rotate even after the PTO has been turned off. The operator should remain in his seat for 60 seconds after the brake has been set, the PTO disengaged, the tractor turned off, and all evidence of rotation has ceased. (S3PT-10)

**"Wait a minute...Save a life!"**

### **DANGER**

Never operate the Tractor or Implement until you have read and completely understand this Manual, the Tractor Operator's Manual, and each of the Safety Messages found in the Manual or on the Tractor and Implement. Learn how to stop the tractor engine suddenly in an emergency. Never allow inexperienced or untrained personnel to operate the Tractor or Implement without supervision. Make sure the operator has fully read and understood the manuals prior to operation. (SG-4)



### **WARNING**

The operator and all support personnel should wear hard hats, safety shoes, safety glasses, and proper hearing protection at all times for protection from injury including injury from items that may be thrown by the equipment. (SG-16)



### **CAUTION**

PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS! Tractors with or without an Implement attached can often be noisy enough to cause permanent hearing loss. We recommend that you always wear hearing protection if the noise in the Operator's position exceeds 80db. Noise over 85db over an extended period of time will cause severe hearing loss. Noise over 90db adjacent to the Operator over an extended period of time will cause permanent or total hearing loss. **NOTE:** Hearing loss from loud noise [from tractors, chain saws, radios, and other such sources close to the ear] is cumulative over a lifetime without hope of natural recovery. (SG-17)



### **WARNING**

Always read carefully and comply fully with the manufacturer's instructions when handling oil, solvents, cleansers, and any other chemical agent. (SG-22)



### **DANGER**

KEEP AWAY FROM ROTATING ELEMENTS to prevent entanglement and possible serious injury or death. (SG-24)



# SAFETY

## SAFETY



Never allow children to play on or around Tractor or Implement. Children can slip or fall off the Equipment and be injured or killed. Children can cause the Implement to shift or fall crushing themselves or others. (SG-25)



NEVER use drugs or alcohol immediately before or while operating the Tractor and Implement. Drugs and alcohol will affect an operator's alertness and coordination and therefore affect the operator's ability to operate the equipment safely. Before operating the Tractor or Implement, an operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the Equipment safely. NEVER knowingly allow anyone to operate this equipment when their alertness or coordination is impaired. Serious injury or death to the operator or others could result if the operator is under the influence of drugs or alcohol. (SG-27)



Prolonged operation may cause operator boredom and fatigue affecting safe operation. Take scheduled work breaks to help prevent these potentially impaired operating conditions. Never operate the Implement and Tractor in a fatigued or bored mental state which impairs proper and safe operation. (SG-32)



Use extreme caution when getting onto the Implement to perform repairs, maintenance and when removing accumulated material. Only stand on solid flat surfaces to ensure good footing. Use a ladder or raised stand to access high spots which cannot be reached from ground level. Slipping and falling can cause serious injury or death. (SG-33)



Avoid contact with hot surfaces including hydraulic oil tanks, pumps, motors, valves and hose connections. Relieve hydraulic pressure before performing maintenance or repairs. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury from burns or scalding. (SG-34)



DO NOT operate this Implement on a Tractor that is not properly maintained. Should a mechanical or Tractor control failure occur while operating, immediately shut down the Tractor and perform repairs before resuming operation. Serious injury and possible death could occur from not maintaining this Implement and Tractor in good operating condition. (SG-36)



Avoid contact with hot surfaces of the engine or muffler. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury from burns or scalding. (SG-38)

# SAFETY

## WARNING

Do not put hands or feet under mower decks. Blade Contact can result in serious injury or even death. Stay away until all motion has stopped and the decks are securely blocked up. (SGM-09)



## DANGER

Always keep a careful lookout and use extreme care when working around utility and municipal obstructions. Never allow the Mower to contact any utility, municipal, or other type structure. Clearly mark all mowing obstructions and consult local utility providers for a safe code of operation. (SPU-5)

## DANGER

Do not operate the implement while wearing loose fitting clothing. Entanglement of the clothing with the rotating elements can result in serious injury or even death. Stay clear of all rotating elements at all times. (SSP-03)

## Equipment Operation Safety Instructions and Practices

## WARNING

Never leave the Tractor and Implement unattended while the Implement is in the lifted position. Accidental operation of lifting lever or a hydraulic failure may cause sudden drop of unit with injury or death by crushing. To properly park the implement when disconnecting it from the tractor, lower the stand and put the retaining pin securely in place, or put a secure support under the A-Frame. Lower the implement carefully to the ground. Do not put hands or feet under lifted components. (S3PT-1)

## DANGER

This Implement may be wider than the Tractor. Be careful when operating or transporting this equipment to prevent the Implement from running into or striking sign posts, guard rails, concrete abutments or other solid objects. Such an impact could cause the Implement and Tractor to pivot violently resulting in loss of steering control, serious injury, or even death. Never allow the Implement to contact obstacles. (S3PT-12)

## DANGER

Be sure you have adequate knowledge of the property you will be working on. Take time to make yourself aware of any area underground lines or cables. Contact with buried lines or cable could result in **serious injury or death**. If in doubt about buried utility lines call 811 before digging or 1-800-258-0808. (SBH-6)

## WARNING

Operate this Equipment only with a Tractor equipped with an approved rollover-protective system (ROPS). Always wear seat belts. Serious injury or even death could result from falling off the tractor--particularly during a turnover when the operator could be pinned under the ROPS. (SG-7)

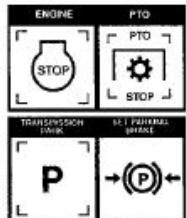


# SAFETY

## SAFETY



BEFORE leaving the tractor seat, always set the parking brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)



Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in serious injury or death. (SG-10)



Never allow children to operate, ride on, or come close to the Tractor or Implement. Usually, 16-17 year-old children who are mature and responsible can operate the implement with adult supervision, if they have read and understand the Operator's Manuals, been trained in proper operation of the tractor and Implement, and are physically large enough to reach and operate the controls easily. (SG-11)



Do not mount or dismount the Tractor while the tractor is moving. Mount the Tractor only when the Tractor and all moving parts are completely stopped. (SG-12)



Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operators manual for proper starting instructions. (SG-13)



Do not operate this Equipment with hydraulic oil or fuel leaking. Oil and fuel are explosive and their presence could present a hazard. Do not check for leaks with your hand! High-pressure oil streams from breaks in the line could penetrate the skin and cause tissue damage including gangrene. To check for a hose leak, SHUT the unit ENGINE OFF and remove all hydraulic pressure. Wear oil impenetrable gloves, safety glasses and use Cardboard to check for evidence of oil leaks. If you suspect a leak, REMOVE the HOSE and have it tested at a Dealer. If oil does penetrate the skin, have the injury treated immediately by a physician knowledgeable and skilled in this procedure. (SG-15)



# SAFETY

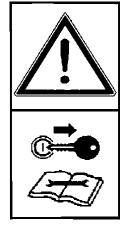
In addition to the instructions described in the manual follow all general safety and accident prevention rules. Before operating the machine or performing maintenance read and understand the instructions.

The labels affixed to the machine call attention to safety precautions that shall be followed.

Make sure that safety labels are legible. Clean and replace them if necessary.



Before maintenance, adjustment or cleaning, lower the machine to the ground, turn off the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.



Before operating the machine make sure that all guards and safety devices are properly secured and in good conditions; replace damaged safety devices. In particular **check wear on guards, curtain and connecting devices before operating the machine.**



**For your safety and the safety of others do not tamper with, damage or remove safety devices.**



While working make sure that no people or animals are within 50 m of the machine. When working near public roads or public places keep others away and be more careful.



Keep the manual handy to check operational running. If the manual becomes lost or damaged, order a copy from RHINO.

**The machine shall be operated exclusively by authorised trained staff.**

**The machine has been designed to be operated by one operator at a time.**

There might be some dust production during operation. It is recommended to use tractors equipped with cabins with filters on the fan system or to use suitable fan devices such as masks in order to protect the breathing system.

Before operating the machine check wear on cutting devices (knives and discs). **Replace worn or damaged knives and discs.** After replacing make sure that all fasteners (bolts, screws and nuts) are of the type recommended by the Manufacturer.

If an object is hit, damaged or worn knives are more likely to be thrown out of the machine. Replace them immediately.

After transport perform an inspection. If the machine has been damaged contact RHINO.

Make sure that there are not any foreign bodies in the machine (debris, tools, etc.) which could affect operation or cause injuries to the operator.

If using compressed air or water for cleaning, wear safety glasses and masks and keep others away.

SAFETY

## SAFETY



Do not get on the machine or allows riders while the machine is in operation.

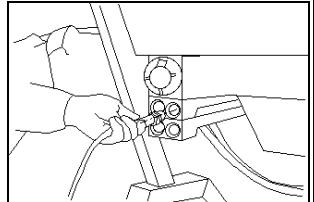


After hitching make sure that the drive shaft is installed properly. Make sure that the drive shaft guards are in good conditions.



Replace worn or damaged drive shaft guards.

When the machine is not connected to the power takeoff, the hydraulic hoses and the drive shaft shall be properly secured to their support elements.



Make sure that hydraulic hoses are properly installed.

Check hydraulic hoses for wear and replace them if necessary (anyway at least every 6 years).

Detach the machine on level ground, with the cutter bar lowered to the ground, with the aid of the stand. Make sure that the machine is level.

Before performing maintenance under raised parts of the machine secure them using suitable blocks.



Never stand between the tractor and the mower when the engine is running and the power takeoff is engaged.



Make sure that the discs have stopped before approaching the machine.



Pinching and crushing hazard when bringing the to the transport and working position. Operate with the machine more carefully and keep others away from the area.



# SAFETY

## DANGER

Never run the Tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23)

## WARNING

Do not exceed the rated PTO speed for the Implement. Excessive PTO speeds can cause Implement driveline or blade failures resulting in serious injury or death. (SG-26)

## DANGER

Operate the Tractor and/or Implement controls only while properly seated in the Tractor seat with the seat belt securely fastened around you. Inadvertent movement of the Tractor or Implement may cause serious injury or death. (SG-29)

## WARNING

In case of mechanical difficulty during operation, place the transmission in the park position, set the parking brake, shut down all power, including the PTO and the engine and remove the key. Wait until all rotating motion has stopped before dismounting. (SG-39)

## WARNING

Do Not operate this equipment in areas where insects such as bees may attack you and/or cause you to lose control of the equipment. If you must enter in such areas, use a tractor with an enclosed Cab and close the windows to prevent insects from entering. If a tractor cab is not available, wear suitable clothing including head, face, and hand protection to shield you from the insects. Attacking insects can cause you to lose control of the tractor, which can result in serious injury or death to you or bystanders. Never dismount a moving tractor. (SG-40)

## WARNING

Mow only in conditions where you have clear visibility in daylight or with adequate artificial lighting. Never mow in darkness or foggy conditions where you cannot clearly see at least 300 feet (90 m) in front and to the sides of the tractor and mower. Make sure that you can clearly see and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris and foreign objects. If you are unable to clearly see these type of items discontinue mowing. (SGM-1)

## DANGER

There are obvious and hidden potential hazards in the operation of this Mower. REMEMBER! This machine is often operated in heavy brush and in heavy weeds. The Blades of this Mower can throw objects if shields are not properly installed and maintained. Serious injury or even death may occur unless care is taken to insure the safety of the operator, bystanders, or passersby in the area. Do not operate this machine with anyone in the immediate area. Stop mowing if anyone is within 300 feet of mower. (SGM-02)



# SAFETY

## **DANGER**

The rotating parts of this machine have been designed and tested for rugged use. However, the blades could fail upon impact with heavy, solid objects such as metal guard rails and concrete structures. Such impact could cause the broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the cutting blades to contact such obstacles. (SGM-4)

## **WARNING**

Extreme care should be taken when operating near loose objects such as gravel, rocks, wire, and other debris. Inspect the area before mowing. Foreign objects should be removed from the site to prevent machine damage and/or bodily injury or even death. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator. Stop mowing immediately if blades strike a foreign object. Repair all damage and make certain rotor or blade carrier is balanced before resuming mowing. (SGM-05)

## **WARNING**

Many varied objects, such as wire, cable, rope, or chains, can become entangled in the operating parts of the mower head. These items could then swing outside the housing at greater velocities than the blades. Such a situation is extremely hazardous and could result in serious injury or even death. Inspect the cutting area for such objects before mowing. Remove any like object from the site. Never allow the cutting blades to contact such items. (SGM-06)

## **WARNING**

Mow at the speed that you can safely operate and control the tractor and mower. The correct mowing speed depends on terrain condition and grass type, density, and height of cut. Normal ground speed range is from 2 to 5 mph(3-8 kph). Use slow mowing speeds when operating on or near steep slopes, ditches, drop-offs, overhead obstructions, power lines, or when debris and foreign objects are to be avoided. (SGM-07)

## **WARNING**

Avoid mowing in reverse direction when possible. Check to make sure there are no persons behind the mower and use extreme care when mowing in reverse. Mow only at a slow ground speed where you can safely operate and control the tractor and mower. Never mow an area that you have not inspected and removed debris or foreign material.(SGM-08)

## **WARNING**

Do not mow with two machines in the same area except with Cab tractors with the windows closed. (SGM-11)

# SAFETY

## **WARNING**

Follow these guidelines to reduce the risk of equipment and grass fires while operating, servicing, and repairing the Mower and Tractor:



- Equip the Tractor with a fire extinguisher in an accessible location.
- Do Not operate the Mower on a Tractor with an underframe exhaust.
- Do Not smoke or have an open flame near the Mower and Tractor.
- Do Not drive into burning debris or freshly burnt areas.
- Ensure slip clutches are properly adjusted to prevent excessive slippage and plate heating.
- Never allow clippings or debris to collect near drivelines, slip clutches, and gearboxes. Periodically shut down the Tractor and Mower and clean clippings and collected debris from the mower deck. (SGM-12)

## **DANGER**

The Mower is designed for certain mowing applications and is rated to cut up to a specific size vegetation (see Mower Standard Equipment and Specifications). DO NOT use this mower to cut vegetation above the Mower's rated capacity or to cut any type of non-vegetative material. Only operate this Mower on a properly sized and equipped Tractor. Operating this Mower in an application for which it is not designed and/or operating the Mower with the wrong size Tractor can cause Mower component damage and equipment failure resulting in possible serious injury or death. (SGM-14)

## **WARNING**

Do not operate or pull the mower into standing water. When uplift or fan type mower blades contact water they can be severely deflected downward causing possible failure of blade resulting in serious bodily injury to the operator or bystanders. (SGM-15)

## **DANGER**

Use extreme caution when raising the Mower above ground level. Stop the Blades from turning when the Mower is raised and passersby are within 100 yards. Raising the Mower exposes the Cutting Blades which creates a potentially serious hazard and can cause serious injury by objects thrown from the Blades or by contact with the Blades. (SPU-1)

## **DANGER**

Disc Mowers are capable under adverse conditions of throwing rocks and other debris for a considerable distance (50 yards or more) and causing serious bodily injury. Follow safety messages carefully.

**STOP MOWING IF PASSERSBY ARE WITHIN 50 YARDS UNLESS:**

- Front Curtain Shield is installed and in good condition. Replace when needed with genuine Original Equipment Manufacturers parts.
- Mower cutting head is running close to and parallel to the ground surface.
- Passersby are outside the thrown object zone.
- The area to be cut has been cleared of foreign material such as rocks, cans, glass, and debris

NOTE: This Disc mower is not to be used for highway maintenance. (SDM-1)

SAFETY

# SAFETY

## SAFETY



Disc Mowers rotate at a very high rate of speed (3000 RPM). Vibration due to missing, broken, or unbalanced components may cause serious imbalance and lead to rapid failure of components and possible bodily injury from components failure or thrown objects. KEEP BLADE BOLTS AND DISC ATTACHING BOLTS TIGHTENED TO A SPECIFIED IN OPERATORS MANUAL TO ASSURE THE INTEGRITY OF THE ASSEMBLIES. (SDM-3)



There are obvious and hidden potential hazards in the operation of the Disc Mower. REMEMBER! This machine is often operated in hay, grass, and heavy weeds which could hide foreign objects. Remove all foreign debris before mowing an area. The Blades of this mower can throw objects if shields are not installed and maintained. Serious injury or even death may occur unless care is taken to insure the safety of the operator, bystanders, or passersby in the area. Do not operate this machine with anyone in the immediate area. Stop mowing if anyone is within 50 yards of mower. (SDM-4)



Do not let the Blades turn when the Mower Deck is raised for any reason, including clearance or for turning. Raising the Mower deck exposes the Cutting Blades which creates a potentially serious hazard and could cause serious injury or even death from objects thrown from the Blades. (SRM-07)



## Connecting or Disconnecting Implement Safety Instructions and Practices



Always shut the Tractor completely down, place the transmission in park, and set the parking brake before you or anyone else attempts to connect or disconnect the Implement and Tractor hitches. (S3PT-15)

## Transporting Safety Instructions and Practices



Be particularly careful when transporting the Implement with the Tractor. Turn curves or go up hills only at a low speed and using a gradual steering angle. Rear mounted implements move the center of gravity to the rear and remove weight from the front wheels. Make certain, by adding front ballast, that at least 20% of the tractor's weight is on the front wheels to prevent rearing up, loss of steering control or Tractor tip-over. Slow down on rough or uneven surfaces to prevent loss of steering control which could result in property damage or possible injury. Do not transport unless 3-Point lift lever is fully raised and in the latched transport position. Dropping implement in transport can cause serious damage to the tractor and/or Implement and possibly cause the operator or others to be injured or killed. (S3PT-02)

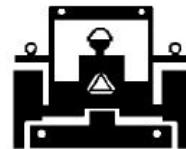
# SAFETY

## DANGER

This Implement may be wider than the Tractor. Be careful when operating or transporting this equipment to prevent the Implement from running into or striking sign posts, guard rails, concrete abutments or other solid objects. Such an impact could cause the Implement and Tractor to pivot violently resulting in loss of steering control, serious injury, or even death. Never allow the Implement to contact obstacles. (S3PT-12)

## WARNING

Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)



## WARNING

Transport only at speeds where you can maintain control of the equipment. Serious accidents and injuries can result from operating this equipment at high speeds. Understand the Tractor and Implement and how it handles before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.



Before transporting the Tractor and Implement, determine the proper transport speeds for you and the equipment. Make sure you abide by the following rules:

Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum transport speed not to exceed 20 mph (30 kph) for transporting this equipment.

Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that the equipment can be operated at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum turning speed for you and this equipment before operating on roads or uneven ground.



Only transport the Tractor and Implement at the speeds which allow you to properly control the equipment.

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes or worn tires. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)

## DANGER

Be particularly careful when transporting the Implement using the tractor. Turn curves or go up or down hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steerage. Slow down on rough or uneven surfaces. (STI-01)

# SAFETY

## SAFETY

### **WARNING**

Only tow the Implement behind a properly sized and equipped Tractor which exceeds the weight of the Implement by at least 20%. DO NOT tow the Implement behind a truck or other type of vehicle. Never tow the Implement and another Implement connected in tandem. Never tow the Implement at speeds over 20 MPH. (STI-06)



### **WARNING**

Your driving vision may be reduced or impaired by the tractor, cab, or implement. Before driving on public roadways identify any limited vision areas, and make adjustments to your operating position, mirrors, and the implement transport position so that you can clearly see the area where you will be traveling, and any traffic that may approach you. Failure to maintain adequate vision of the public roadway and traffic can result in serious injury or even death. (STI-10)

### **DANGER**

When the cutting head is folded for transport, the center of gravity of the Tractor is raised and the possibility of overturn or tip-over is increased. Serious injury or even death could result from a tractor turnover. Turn slowly and use extra care on hillsides. Never fold the cutting head while on a hillside as the tractor might overturn. (SDM-2)

## **Maintenance and Service Safety Instructions and Practices**

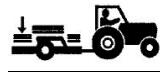
### **DANGER**

Make sure the PTO shield, integral driveline shields, and input shields are installed when using PTO-driven equipment. Always replace any shield if it is damaged or missing. (S3PT-8)



### **WARNING**

Relieve hydraulic pressure prior to doing any maintenance or repair work on the Implement. Place the Implement on the ground or securely blocked up, disengage the PTO, and turn off the tractor engine. Push and pull the Remote Cylinder lever in and out several times prior to starting any maintenance or repair work. (S3PT-09)



### **DANGER**

Always disconnect the main PTO Driveline from the Tractor before performing service on the Implement. Never work on the Implement with the tractor PTO driveline connected and running. Rotating Parts, Blades or Drivelines could turn without warning and cause immediate entanglement, injury or death. (S3PT-11)

### **WARNING**

Always maintain the safety signs in good readable condition. If the safety signs are missing, damaged, or unreadable, obtain and install replacement safety signs immediately. (SG-5)

# SAFETY

## WARNING

Do not modify or alter this Implement. Do not permit anyone to modify or alter this Implement, any of its components or any Implement function. (SG-8)

## DANGER

Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death. (SG-14)



## WARNING

Never attempt to lubricate, adjust, or remove material from the Implement while it is in motion or while tractor engine is running. (SG-20)

## WARNING

Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)



## DANGER

Do Not fill fuel tank while engine is running. Refuel only after engine has cooled down. If fuel is spilled, move machine away from the area of the spill and avoid creating any source of ignition until the gasoline has evaporated. (SG-28)

## WARNING

Perform service, repairs and lubrication according to the maintenance section. Ensure the unit is properly lubricated as specified in the lubrication schedule and all bolts and nuts are properly torque. Failure to properly service, repair and maintain this Implement in good operating condition could cause component failure and possible serious injury or even death. (SG-35)

## WARNING

Use caution and wear protective gloves when handling sharp objects such as blades, knives, and other cutting edges. Be alert to worn component surfaces which have sharp edges. Sharp surfaces can inflict severe laceration injuries if proper hand protection is not worn. (SG-37)

SAFETY

# SAFETY

## SAFETY



All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Chain Guards, Steel Guards, Gearbox Shields, PTO integral shields, and Retractable Door Shields should be used and maintained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SGM-3)



Replace bent or broken blades with new blades. NEVER ATTEMPT TO STRAIGHTEN, WELD, OR WELD HARDFACING ON BLADES SINCE THIS WILL LIKELY CRACK OR OTHERWISE DAMAGE THE BLADE WITH SUBSEQUENT FAILURE AND POSSIBLY CAUSE SERIOUS INJURY FROM THROWN BLADES. (SGM-10)

### PARTS INFORMATION

Rhino mowers use balanced and matched system components for blade carriers, blades, cutter shafts, knives, knife hangers, rollers, drive train components, and bearings. These parts are made and tested to Rhino specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce mower performance, void warranties, and present a safety hazard. Use genuine Rhino mower parts for economy and safety. (SPRM-1)

### SEE YOUR RHINO DEALER



Be sure you have adequate knowledge of the property you will be working on. Take time to make yourself aware of any area underground lines or cables. Contact with buried lines or cable could result in **serious injury or death**. (STL-1)



In wet conditions where there is a likelihood of material collecting on the Implement, make certain that this material is removed before traveling on public roadways. (STL-7)

## Storage And Parking Safety Instructions And Practices



A rear Implement can fall if not properly supported. Always use the stand on the front hitch (if equipped) or block up securely to prevent falling and possible crushing injury and/or other injury from holding or lifting heavy components. Use the stand to stabilize the implement during storage. (S3PT-3)

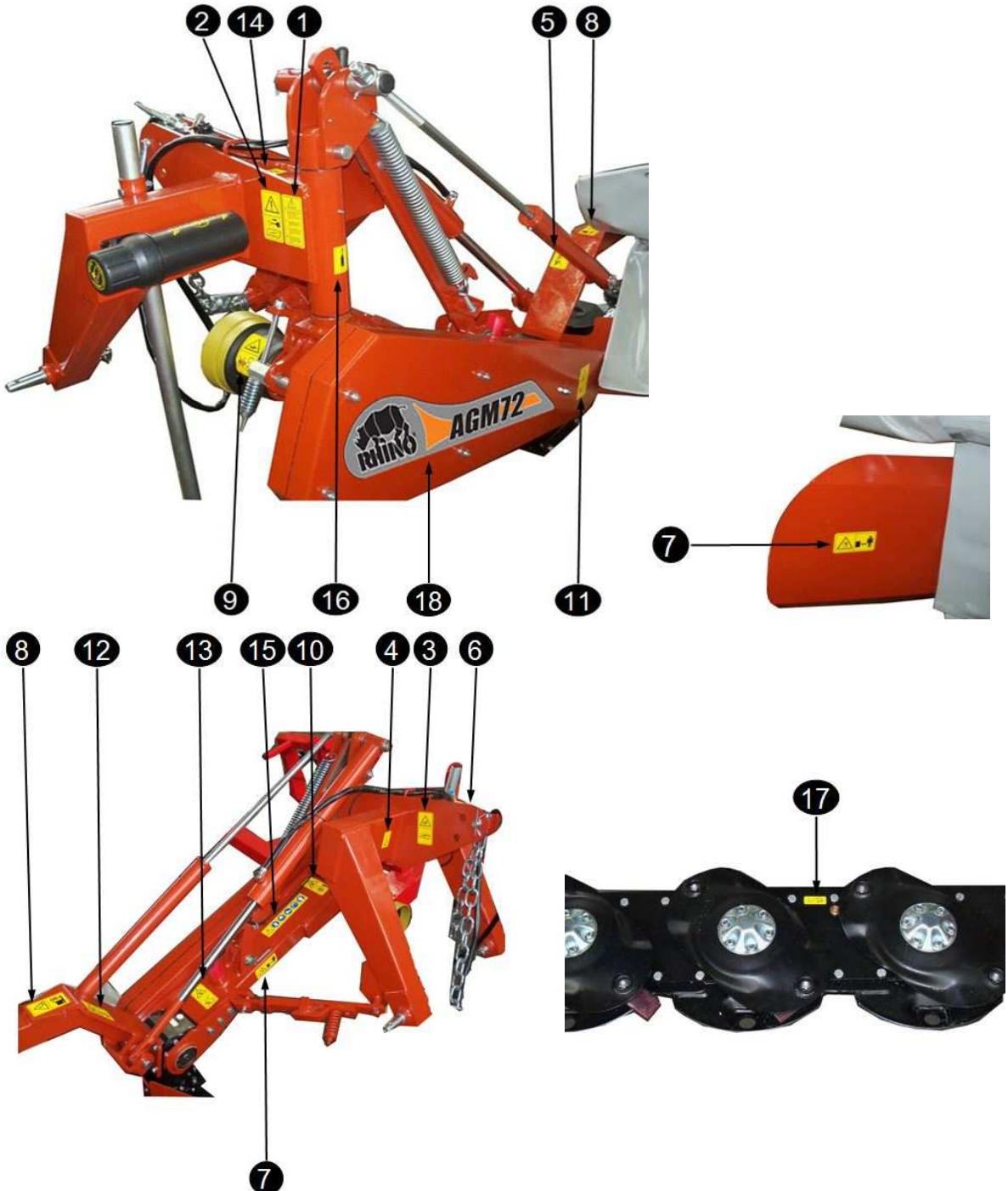
## Concluding Safety Instructions and Practices

In addition to the design and configuration of this Implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the Tractor and Equipment Manuals. Pay close attention to the Safety Signs affixed to the Tractor and Equipment. (SG-18)

# SAFETY

## Decal Location

**NOTE:** Rhino supplies safety decals on this product to promote safe operation. Damage to the decals may occur while in shipping, use, or reconditioning. Rhino cares about the safety of its customers, operators, and bystanders, and will replace the safety decals on this product in the field, free of charge (Some shipping and handling charges may apply). Contact your Rhino dealer to order replacement decals.



# SAFETY

# SAFETY

ITEM	PART NO.	QTY	LEVEL	DESCRIPTION
1.	00787358	1	WARNING	Notice to Owner
2.	00787359	1	WARNING	Notice to Owner
3.	00787360	1	WARNING	Pressure Hazard
4.	00787361	1	WARNING	540 PTO Speed
5.	00787362	2	DANGER - WARNING	Disc Stop
6.	00787363	1	DANGER - WARNING	Rotating Knives
7.	00787364	2	WARNING	Safe Distance
8.	00787365	1	WARNING	Machine Ride
9.	00787366	1	WARNING	Entanglement Hazard
10.	00787367	1	WARNING	Crushing Hazard
11.	00787368	1	WARNING	Belt Stop
12.	00787369	1	DANGER	Crushing and Shearing Hazard
13.*	00787370	1	WARNING	Crushing Hazard
14.	00787371	1	WARNING	Hook Point
15.	00787372	1	-----	Equipment to Wear
16.	00787373	1	-----	Lubrication Points
17.	00787374	1	-----	Oil tank
18.	00787375	(1)	NAME	AGM52
	00787376	(1)	NAME	AGM62
	00787377	(1)	NAME	AGM72
	00787378	(1)	NAME	AGM82

\*Item #13 is permanently attached to the cover sheet. If the message is not readable, the cover sheet must be replaced.

(#) Use only one

# SAFETY

## Decal Description



P/N 00787358

**1. WARNING!** Thoroughly read the operator's manual before operating the machine. Follow the instructions and the safety rules during operation.



P/N 00787359

**2. WARNING!** Before maintenance and adjustment, read the operator's and maintenance manual, stop engine and remove the ignition key.

# SAFETY

## SAFETY



P/N 00787360

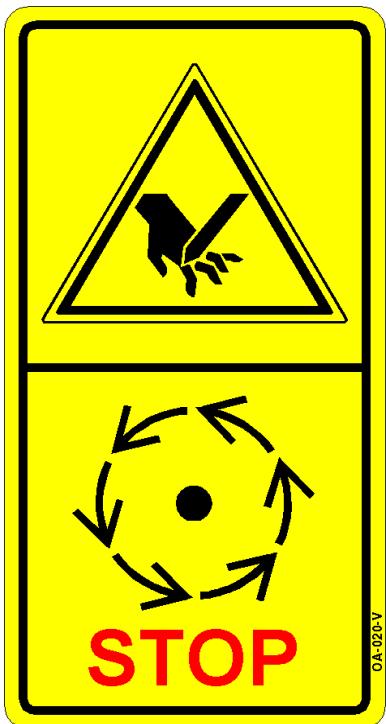
**3. WARNING!** High pressure fluid hazard. Refer to the manual before taking any action and seek medical assistance in the event of contact with dangerous fluids.



P/N 00787361

**4. WARNING!** Check the direction of rotation and the revolutions (540 rpm) of the takeoff power of the tractor before assembling the drive shaft.

# SAFETY



P/N 00787362

**5. WARNING! – DANGER** Wait for all discs of the mower to stop before approaching the machine.



P/N 00787363

**6. WARNING! – DANGER** Rotating knives. Keep hands and feet away from moving parts.

# SAFETY

## SAFETY



P/N 00787364

**7. WARNING!** Thrown object hazard, **do not approach the machine**. Keep a safe distance of at least 50 meters from the machine.



P/N 00787365

**8. WARNING!** Do not get on the machine and never allow riders.

# SAFETY



P/N 00787366

**9. WARNING!** – Entanglement hazard. Keep hands away from the running drive shaft.



P/N 00787367

**10. WARNING!** - Crushing hazard. Never stand between the tractor and the machine.

SAFETY

# SAFETY

## SAFETY



P/N 00787368

11. **WARNING!** Wait for the belts to stop before removing safety guards.



P/N 00787369

12. **DANGER** Crushing and shearing hazard. Keep hands away and stand clear. Keep a safe distance.

# SAFETY



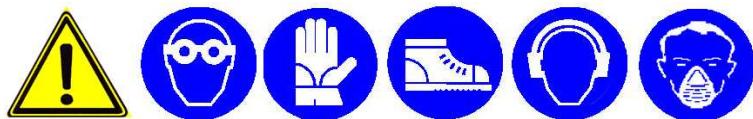
P/N 00787370

**13. WARNING!** – Crushing hazard. Stand clear when cutter bar is being raised.



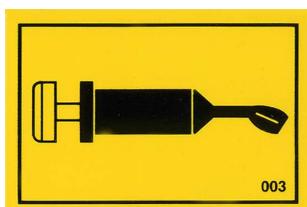
P/N 00787371

**14. WARNING!** Hook the machine at the indicated points for raising.



P/N 00787372

**15. Wear proper protective equipment.**



P/N 00787373

**16. Lubrication points**

SAFETY

## SAFETY



P/N 00787374

17. Reduction gear oil tank



P/N 00787375

18. NAME – AGM52



P/N 00787376

18. NAME – AGM62



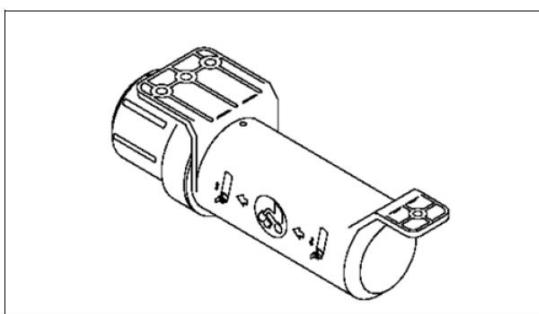
P/N 00787377

18. NAME – AGM72



P/N 00787378

18. NAME – AGM82



P/N 00776031

Read Operator's Manual! The operator's manual is located inside this canister. If the manual is missing order one from your dealer.

Manual Part Number is 00787389

# SAFETY

## **Federal Laws and Regulations**

This section is intended to explain in broad terms the concept and effect of federal laws and regulations concerning employer and employee equipment operators. This section is not intended as a legal interpretation of the law and should not be considered as such.

### Employer-Employee Operator Regulations

U.S. Public Law 91-596 (The Williams-Steiger Occupational and Health Act of 1970) OSHA

#### **This Act Seeks:**

“...to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources...”

#### **DUTIES**

##### Sec. 5 (a) Each employer-

- (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
- (2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.

#### **OSHA Regulations**

OSHA regulations state in part: “At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved.”

### Employer Responsibilities:

To ensure employee safety during Tractor and Implement operation, it is the employer's responsibility to:

1. Train the employee in the proper and safe operation of the Tractor and Implement.
2. Require that the employee read and fully understand the Tractor and Implement Operator's manual.
3. Permit only qualified and properly trained employees to operate the Tractor and Implement.
4. Maintain the Tractor and Implement in a safe operational condition and maintain all shields and guards on the equipment.
5. Ensure the Tractor is equipped with a functional ROPS and seat belt and require that the employee operator securely fasten the safety belt and operate with the ROPS in the raised position at all times.
6. Forbid the employee operator to carry additional riders on the Tractor or Implement.
7. Provide the required tools to maintain the Tractor and Implement in a good safe working condition and provide the necessary support devices to secure the equipment safely while performing repairs and service.
8. Require that the employee operator stop operation if bystanders or passersby come within 25 feet.

### Child Labor Under 16 Years of Age

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin #102.)



INDUSTRIAL/  
AGRICULTURAL MOWER

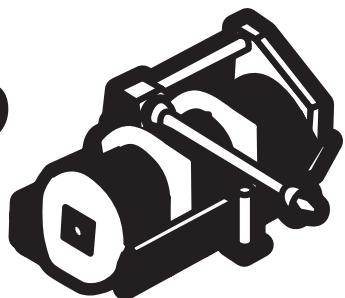
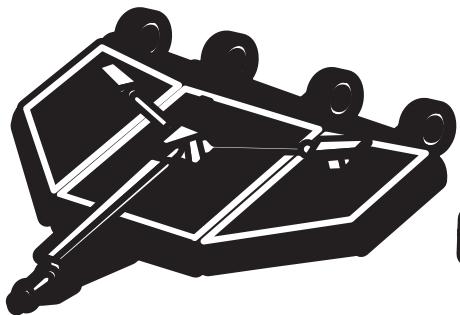
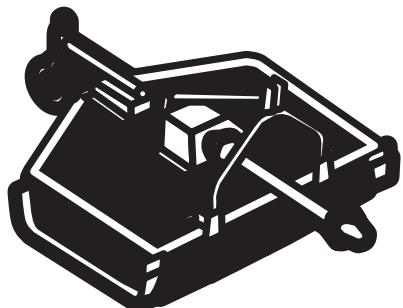
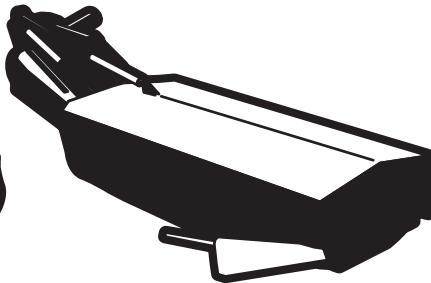
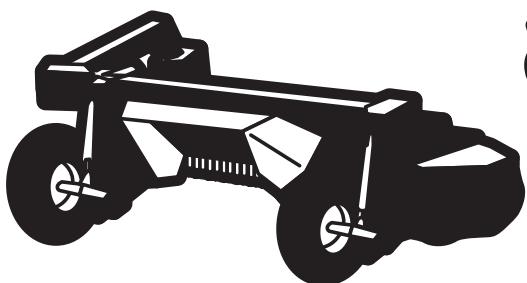


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# SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



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## Acknowledgment

We wish to acknowledge the contributions of the members of AEM's Industrial/Agricultural Mower Manufacturers Council to the preparation of this Safety Manual.

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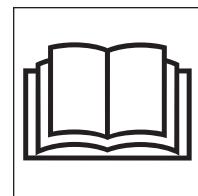
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Revised 01/03, 09/10

## Foreword

This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine and to instruct you in safety practices for dealing with these conditions. This manual is **NOT** a substitute for the mower manufacturer's operator's manual(s).

Additional precautions may be necessary, or some instructions may not apply, depending on equipment, attachments and conditions at the worksite or in the service area. The manufacturer has no direct control over equipment application, operation, inspection or maintenance. Therefore, it is **YOUR** responsibility to use good safety practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's operator's manual(s). Other information that may affect the safe operation of your machine may be contained on safety signs or in insurance requirements, employer's safety and training programs, safety codes, local, state/provincial and federal laws, rules and regulations.



Read and  
Understand  
Manuals Before  
Operating



**IMPORTANT!** Before you operate the mower, make sure you have the manufacturer's operator's manual(s) for this machine and all attachments. If the manufacturer's manuals are missing, obtain replacement manuals from your employer, equipment dealer or directly from the manufacturer. Keep this safety manual and the manufacturer's manuals with the machine at all times. Read and understand all manuals.

The AEM Mower Safety Practices video is available to train and reinforce good safety practices. Operators are encouraged to periodically view the safety video.

# Safety Alerts

## Symbol

This Safety Alert Symbol means: **“ATTENTION!  
STAY ALERT! YOUR SAFETY IS INVOLVED!”**

The Safety Alert Symbol identifies important safety messages on equipment, safety signs, in manuals or elsewhere. When you see this symbol, be alert to the possibility of death or personal injury. Follow instructions in the safety message.



Reasons Safety is Important:

- Accidents disable and kill.
- Accidents cost.
- Accidents can be avoided.

## Signal Words

Signal words are distinctive words that will typically be found on safety signs on the mower and other worksite equipment. These words may also be found in this manual and the manufacturer's manuals. These words are intended to alert the operator to a hazard and the degree of severity of the hazard.



### DANGER

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



### WARNING

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



### NOTICE

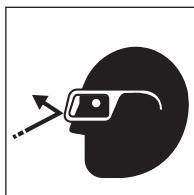
**NOTICE** indicates a property damage message.

## A Word To The User/Operator

It is **YOUR** responsibility to read and understand the safety manual and the manufacturer's manuals before operating this machine. This safety manual takes you step by step through your working day.

**Hazard Recognition and Accident Prevention** depend upon you being alert, careful and properly trained in the operation, transport, maintenance and storage of this equipment.

Graphics have been provided to help you understand the text.



Read and  
Understand All  
Safety Signs

Remember that **YOU** are the key to safety. Good safety practices not only protect you but also protect the people around you. Study and understand this manual and the manufacturer's manuals for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for industrial/agricultural mowers.

Contact the manufacturer of your equipment to answer any questions about safe operation that remain after studying the manufacturer's operator's manual(s) and this safety manual.

**Practice all other usual and customary safe working precautions and above all:**

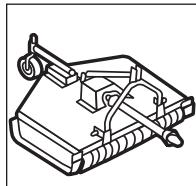
**REMEMBER — SAFETY IS UP TO YOU!**

**YOU CAN PREVENT SERIOUS INJURY OR DEATH CAUSED BY UNSAFE WORK PRACTICES!**

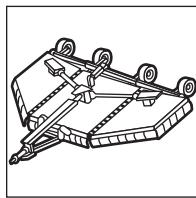
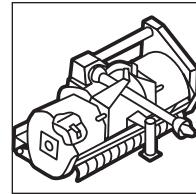
# The Industrial/Agricultural Mower

## Industrial/Agricultural Mower Types

Mowers are used for pasture clipping, crop residue shredding, heavy brush cutting, waterways, right-of-ways, roadside or highway mowing. Also, these mowers are used for cutting grass and other growth in public areas such as parks and cemeteries.

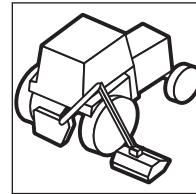


Flail

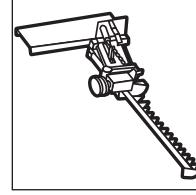


Folding Wing Rotary

Boom



Sickle Bar

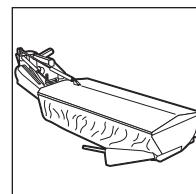


# The Industrial/Agricultural Mower

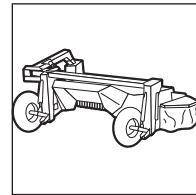
## Agricultural Disc Mower Types

Disc mowers are designed and equipped to cut hay crops at higher field speed.

Disc mower/conditioners mow and condition crops.

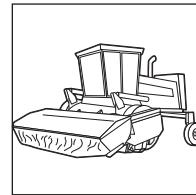


Disc Mower



Disc Mower Conditioner

Self-propelled windrowers mow and form conditioned hay into windrows.



Self-propelled Windrower

# Follow A Safety Program

## Protect Yourself

Wear personal protective clothing and Personal Protective Equipment (PPE) issued to you or called for by job conditions. You must **ALWAYS** wear safety glasses with side shields.

You may also need:

- Hard hat
- Safety shoes
- Safety goggles or face shield
- Heavy gloves
- Hearing protection
- Reflective clothing
- Wet weather gear
- Respirator or filter mask

Wear whatever is needed—don't take chances.

**WARNING!** Prevent death or serious injury from entanglement. **Do not wear loose clothing or accessories. Tie up long hair. Stay away from all rotating components when the engine is running.** Contact, wrapping or entanglement with rotating or moving parts could result in death or serious injury.

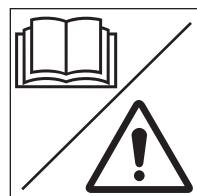


Avoid Entanglement

# Follow A Safety Program

- Read, understand and follow the manufacturer's written instructions found in the operator's manual(s) and safety signs on mower and tractor.
- Have operational training with mower and tractor.
- Take advantage of training programs offered in your area.
- Ask your equipment dealer or supervisor to explain things you do not understand.
- Explain the written instructions in the operator's manual(s) and safety signs to those users or operators who cannot read.
- Inspect the mower and tractor daily before operating. Ensure all guards are in place and the equipment is operating properly.
- Never smoke while operating. Never fill the fuel tank with the engine running or near an open flame.
- Make sure you have adequate visibility and sufficient lighting.
- Know the pinch points and rotating parts. Awareness on your part can prevent accidents.
- Never attempt to operate the controls except from the operator's seat. Improperly controlled functions could produce unexpected machine movement and result in serious injury or death.

- Shut down the mower and tractor before dismounting. (See page 18, **Proper Equipment Shut Down Practices.**)



Read, Understand and Follow Manuals and Safety Signs



Avoid Rotating Parts



Know and Avoid Pinch Points

# Follow A Safety Program

## Avoid Injury From Raised Equipment

Avoid possible crushing injury from falling mower or other raised equipment.



Avoid Crushing –  
Block Up or  
Securely Support  
Mower

Before working near or under raised mower or equipment parts:

- Securely support or block up raised mower or equipment parts according to the operator's manual.
- Securely support, block up or lock up wings with approved locking devices or lower mower or equipment parts to the ground.
- Use transport locks when transporting mower on public roads.

## Avoid Injury From High Pressure Fluid

Avoid fluid injection injury due to high pressure fluid leaks.



High Pressure  
Fluid Can Inject  
into the Body

If any fluid is injected into the skin, it must be removed within a few hours by a doctor familiar with this type of injury.

Fluid leaks under pressure may not be visible. When checking for leaks or working around pressurized systems:

- Read manufacturer's operator's manual(s) for recommended safety practices.
- Wear a face shield or safety goggles for eye protection.
- Use a piece of cardboard or wood to check for leaks; **DO NOT use your hands.**
- Relieve system pressure before disconnecting lines.
- Check for and repair damaged or leaking lines, pipes and hoses.
- Check for and tighten loose connections.
- Purge air from system before operating.

# Follow A Safety Program

## Avoid Injury From Fire And Explosion

Set the parking brake, shut the mower and tractor engine down and remove the key while filling the fuel tank. Use extra caution when fueling a hot engine. Never smoke while fueling. Avoid sparks by grounding the fuel nozzle against the filler neck.

The fumes in an empty fuel tank are explosive. Never weld or cut on fuel lines, tanks or containers.

Remove all trash or mowing debris from the machine daily or as needed. Keep debris away from engine, exhaust, slip clutches and other heat sources. Use spark arrestors, as appropriate, on the engine exhaust system. Make sure oily rags or other flammable material are not stored on the machine.

Check for fuel, oil or hydraulic fluid leaks. Repair the leaks and clean the machine before you operate it.

Ether/cold start fluid is flammable. Do not smoke when using ether/cold start fluid. Always follow the instructions on the can and in the manufacturer's operator's manual(s) for your mower. Do not use ether/cold start fluid if the engine is equipped with a glow plug or other type of preheater.

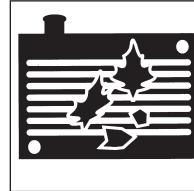
Always use a nonflammable solvent when you clean parts. Do not use gasoline, diesel fuel or other flammable fluids.

Store all flammable fluids and materials away from your machine and work area.

Know where fire extinguishers are kept—how they operate—and what type of fire they are for. Check readiness of fire extinguishers according to manufacturer's instructions. Make sure each tractor is equipped with a fire extinguisher.



No Smoking  
and No Open  
Flames



Remove  
Debris Daily or  
As Needed

# Follow A Safety Program

## Be Alert!

Know where to get assistance. Know how to use a first aid kit and fire extinguisher/fire suppression system.

## Be Aware!

Take advantage of training programs offered.

## Be Careful!

Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity of operator with the machine, drugs, and alcohol to name a few. Damage to the tractor or mower can be fixed in a short period of time, but injury, or death, has a lasting effect.

For your safety and the safety of others, encourage your fellow workers to act safely.



Never Use Drugs  
or Alcohol While  
Operating

## For Safe Operation

You must be a qualified and authorized operator for proper operation of your machine. You must clearly understand the written instructions supplied by the manufacturer, be trained—including actual operation of the mower—and know the safety rules and regulations for the worksite. It is a good safety practice to point out and explain safety signs and practices and ensure others understand the importance of following these instructions.

**WARNING!** Drugs and alcohol affect an operator's alertness and coordination and the operator's ability to safely operate the equipment. **Never use drugs or alcohol while operating the mowing equipment.** **Never knowingly allow anyone to operate this machine when their alertness or coordination is impaired.** An operator taking prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to safely operate this equipment.

# Follow A Safety Program

## Know The Rules

Most employers have rules governing operation and maintenance of equipment. Before you start work at a new location, check with your supervisor or the safety coordinator. Ask about the rules you will be expected to obey.

The Occupational Safety and Health Administration (OSHA) enforces federal laws within the United States that apply to safe operation, application and maintenance of equipment on a worksite. It is the employer's responsibility to comply with these laws. An OSHA representative may periodically inspect a worksite to see that these laws are being followed.

There may also be local or state/provincial laws or international regulations that apply to this equipment and its use, along with specific worksite or employer rules. It is important that you know and comply with all applicable laws and rules, including those requiring operator training and certification.

### Safety Rules

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Know and  
Understand  
Rules of  
Operation

### These are some of the rules you must work by:

- A ROPS and seat belt-equipped tractor is a federal government (OSHA) requirement for operator protection during mowing operations. An enclosed cab provides additional operator protection from thrown objects. Check your mower operator's manual to see if a tractor cab is also required.
- Wear and check that others are wearing proper clothing and personal protective equipment.
- Inspect your machine and attachments before each use as specified by the manufacturer and your employer.
- Know the limitations and operating characteristics of your mowing equipment. Do not misuse it.
- Have all provided shields and guards properly installed before operating the machine.
- Never modify or remove any part of the machine (except for service—then make sure it is replaced).

# Follow A Safety Program

## Some Rules You Must Work By (continued)

- Only qualified and authorized individuals may operate this equipment.
- **Never allow children to play on, ride on or operate** the equipment. Children **are not** qualified to operate this equipment.
- **Do not allow any** riders.
- Use three-point contact (handholds and steps) and face the equipment when mounting or dismounting.
- Keep bystanders 300 ft (92 m) from the mowing operation.
- Know the worksite before you use the mower. Be aware of possible terrain hazards that you may encounter. Remove or mark obstacles and debris that could damage or be thrown by the mower.
- Only use attachments and parts that are approved by the mower manufacturer.
- Make sure all attachments are lowered, set the parking brake, shut off the engine and cycle the control levers. Remove the key before leaving the tractor. (See page 18, **Proper Equipment Shut Down Practices.**)
- When transporting the mower on a trailer, follow the manufacturer's detailed instructions for loading, tying down and unloading the mower.



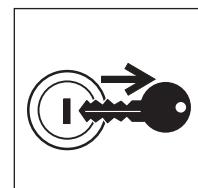
Keep Children Away from Equipment



Keep Bystanders Away



No Riders

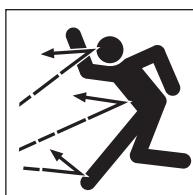
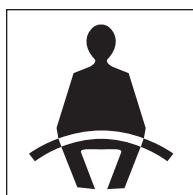


Shut Down Unattended Equipment

# Follow A Safety Program

## Know The Equipment

Read and understand the DANGER, WARNING, CAUTION and NOTICE safety signs and other informational signs on the tractor and mower and in the manufacturer's operator's manual. Ask your supervisor or mower dealer to explain any information you do not understand. Failure to obey safety instructions could result in death or serious injury.

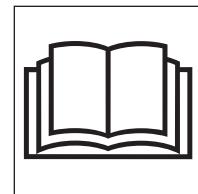


Read and Understand All Safety Signs

Make sure all the manufacturer's protective structures, guards, shields, screens and panels are in good repair, in place and securely fastened. Damaged, missing or weakened safety components can create a hazardous situation for you as the operator. **Never** remove or modify any safety components including thrown object shielding on a mower.

### Know the following about your tractor and mower:

- Function, purpose and use of all controls.
- Correct operation speeds.
- Slope and uneven terrain capabilities and proper operation.
- Braking and steering characteristics.
- Turning radius and clearances.
- How to quickly stop equipment in an emergency.



Read and Understand Manuals Before Operating

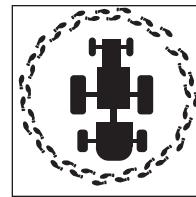
# Prepare For Safe Operation

## Check The Mower And Tractor Equipment

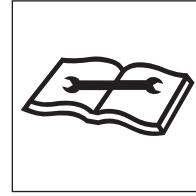
Before beginning your work day inspect the machine and have all systems in good operational condition.

**WARNING!** Prevent possible crushing injury from falling equipment. Hydraulic system or part failure could cause unsupported equipment to fall. **Do not go under raised equipment unless it is properly supported according to the operator's manual.**

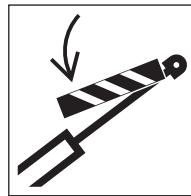
- Perform daily and periodic service procedures as instructed by the equipment manufacturer.
- Check for loose, broken, missing or damaged tractor and mower parts. Repair or replace these parts.
- Check for proper tractor and mower attachments.
- Check for proper tractor and mower PTO rpm rating match.
- Check mower blade(s) condition. Replace severely worn, bent, gouged or nicked blades including the blade bolts and fasteners. Never straighten or weld on blades.
- Ensure thrown object shielding is properly installed and in good condition. Repair or replace if damaged or missing.



Walk-Around Inspection



Maintain Machine



Read Manual –  
Block Up or  
Securely Support  
Mower

# Prepare For Safe Operation

- Check that all guards and shields are in place and that all equipment is in good operating condition. This includes PTO driveline, gearbox and implement guards and shields that are used for operator protection.
- Check for properly latched driveline yoke-end locking devices.
- Check for damaged or leaky tractor and mower hydraulic systems. Repair or adjust as needed.

**WARNING!** Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious injury, blindness or death. Fluid leaks under pressure may not be visible.

**Use a piece of cardboard or wood to find leaks, not your hand. Wear eye protection.** If fluid is injected into the skin, it must be removed within a few hours by medical personnel familiar with this type of injury.

- Keep the operator platform surface clean and free of grease, oil, dirt, snow or ice. Steps and handholds must be clean and functional.
- Ensure work lights are kept clean (if equipped). Check that all lights work properly.
- Ensure the slow moving vehicle (SMV) sign, reflectors and warning lights are in good condition and can be clearly seen.



Check for Missing/  
Damaged Guards  
and Shields



Check for  
Leaks and Inspect  
Hoses

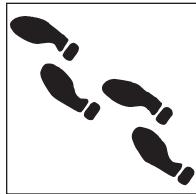


Put Away  
Tools

# Prepare For Safe Operation

## Know The Work Area

Before you operate the mower thoroughly inspect the work area. Walk around the area and inspect the surfaces you will travel on when using the mower.



Walk Around the Worksite

Locate and avoid:

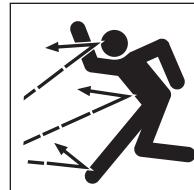
- Holes
- Drop-offs
- Obstacles (stumps)
- Excavations
- Standing water
- Deep mud
- Wet spots
- Soft soil
- Rough spots
- Power lines and apparatus
- Other utilities
- Any conditions which could cause collision, loss of control or tipover
- Steep slopes

Look for debris and obstacles by walking the area before you mow. Objects like wire, cable, rocks, tires, and metal objects that could damage or be thrown by the mower must be removed or marked clearly and avoided.

Correct unsafe conditions. Do not operate in problem areas where debris and obstacles cannot be removed or marked.

Analyze mowing area to determine:

- The most efficient mowing procedure.
- The height of the material to be mowed.
- Operating terrain conditions.
- How to best use forward mowing pattern.
- The potential for bystanders or passers-by to be exposed to thrown objects.



Remove or Mark Debris and Obstacles

## Look Out For Others

Before starting equipment:

- Walk around the equipment.
- Check for anyone under, on or near the equipment.
- Clear everyone from these areas.
- Sound a warning.

# Prepare For Safe Operation

## Mount And Dismount Tractor Properly

Always use three-point contact when mounting or dismounting the tractor or mower. Face the machine when you enter or leave the machine. Three-point contact means that three out of four arms and legs are in contact with the machine at all times during mount and dismount.

Before mounting:

- Clean shoes and wipe hands. Clean steps and handholds of snow, ice, mud or oil.

During mounting and dismounting:

- Use handholds and step plates.
- Never grab steering wheels or controls for handholds.
- Never mount or dismount from a moving tractor.
- Never mount or dismount while carrying tools or objects that prevent three-point contact. Put parts or tools down. Maintaining proper contact, climb and then pick up the object.



Use Three-Point Contact



Clean Up Slippery Areas

# Prepare For Safe Operation

## Tractor And Mower Controls Safety Test

Start the tractor following the specific procedures in the manufacturer's operator's manual. These procedures normally include:

- Fasten and adjust seat belt on your ROPS-equipped tractor.
- Check parking brake for engagement.
- Check PTO disengagement.
- Check all controls for Park position.
- Warn others in area before starting tractor.
- Start tractor following tractor manufacturer's recommended starting procedures.

**WARNING!** Avoid serious injury or death from unexpected machine movement. **Start the engine only from the operator's position.** Never attempt to start the engine by shorting across starter terminals or reaching the key from the ground or outside the cab.

After starting:

- Check all instruments, gauges and indicator lights for normal operation.
- Check all tractor controls, steering and brakes for proper function.

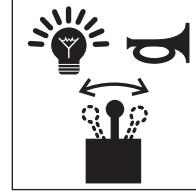
- Raise and lower mower to check for driveline bottoming out or engagement problems.
- Check the equipment for excessive vibration and unusual noises.



Use ROPS and Seat Belt



Start Only from Operator's Seat



Check Instruments and Controls

# Prepare For Safe Operation

- Use proper equipment shut down practices before inspecting equipment. Wait until all equipment motion has stopped before dismounting the tractor or mower.
- Do not operate mower unless tractor and mower are running properly. Place a "Do Not Operate" tag on the machine, remove the key and do not operate the mower until the problem is corrected.

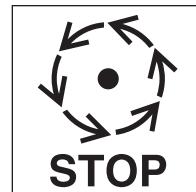
## Power Takeoff System

Be sure to operate the tractor at the mower's rated PTO rpm speed.

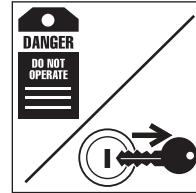
When operating tractors with transmission-driven PTO systems, a rotary mower will have a significant flywheel effect. The mower may continue to propel a tractor with a transmission-driven PTO system.

The tractor should be equipped and operated as follows:

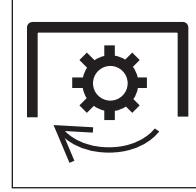
- Install a driveline equipped with an over-running clutch.
- Give yourself sufficient maneuvering room and time by anticipating turns, stops and speed reductions.



Do Not Dismount Until Equipment Motion Has Stopped



Use a "Do Not Operate" Tag



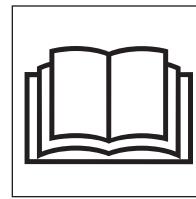
Use Proper PTO Speed

# Prepare For Safe Operation

## Hitching Mower To Tractor

### Three-point hitch-mounted mowers:

- Refer to mower and tractor manufacturers' manuals.
- Place tractor's hydraulic power lift (rockshaft) selector lever in down position to avoid unexpected movement.
- Explain the hitching procedures to those operators who cannot read.
- Front-end weights may be needed to maintain steering control and front-end stability. Refer to the manufacturers' operator's manual(s).
- When backing the tractor up to the mower, NEVER allow anyone between the tractor and the mower.
- Attach the mower to the tractor three-point links and securely pin in position.
- Securely attach the driveline to the tractor PTO. Lower the master shield into place if it is movable. Push and pull on the driveline to ensure it is locked onto the PTO shaft.



Read and Understand Manuals Before Operating



Maintain Proper Weight Distribution



No One Allowed Between Tractor and Mower

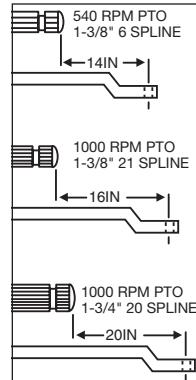


Avoid Entanglement, Use Guards and Shields

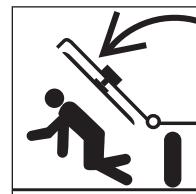
# Prepare For Safe Operation

### Pull-type hitch-mounted mowers:

- Refer to mower and tractor manufacturers' manuals.
- Remove three-point hitch quick coupler if equipped.
- Attach only to drawbar hitch.
- Adjust tractor drawbar length for 540 or 1000 rpm PTO operation.
- When backing the tractor up to the mower, NEVER allow anyone between the tractor and the mower.
- Properly attach the mower safety tow chain to the tractor.
- Securely attach the driveline to the tractor PTO. Push and pull on the driveline to ensure it is locked onto the PTO. Lower the master shield into place.
- Hook up the mower hydraulic hoses to the tractor.
- Make sure the wings, or raised mower decks, are supported by the cylinders before removing the transport locks. Never use force to release the transport or wing locks. The wings or deck could fall and crush you.



Tractor Drawbar Adjustment



Confirm Wings Are Supported Before Releasing Locks



Avoid Entanglement, Use Guards and Shields

# Start Safely

## Make The Right Start

Mow only in daylight or good artificial light conditions.

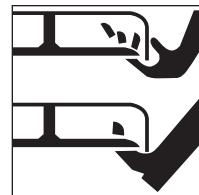
Avoid serious injury or death from mower-thrown objects or blade contact:

- Keep chain shields, flexible or solid deflector shields or discharge chutes in place and in good repair.
- Keep bystanders at least 300 ft (92 m) from mowing operation.
- Never direct mower discharge toward anyone.
- Keep hands, feet and other body parts away from rotating parts, blades and discharge openings.
- Do not operate mower in transport position.

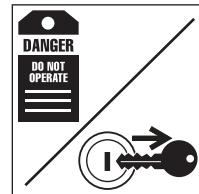
Do not approach a mower until all motion has stopped.

Mower PTO drive engagement:

- Raise mower to maximum cutting height.
- Engage PTO at low engine rpm.
- Increase engine rpm to mower's rated rpm PTO speed.
- Lower mower to desired cutting height.
- Stop and shut down immediately if the mower strikes an obstruction.
- Inspect and repair any mower damage before resuming mowing.
- Do not operate mower with severe vibrations or with unusual noise.



Rotating Blades –  
Keep Away



Do Not Operate a  
Damaged Mower

## Mower-Thrown Objects

Depending on the designed purpose, mowers are designed to cut grass, weeds, brush and crops. The mower blades have been designed and tested for rugged use. The mower blades, however, are not intended to contact solid objects like rocks, concrete or metal. Such impact can cause broken objects to be thrown up to 300 ft (92 m). Bystanders should never be within 300 ft (92 m) of an operating rotary mower or within 100 ft (30 M) of a properly equipped disc mower.

# Operate Safely

Mower shielding is designed to reduce the risk of thrown objects and must be properly maintained and in place during mowing operations.

The risk of serious injury or death from thrown objects can be significantly reduced by following three rules.

**If all of these safety rules are not followed, the mowing operation must be stopped if anyone comes within the safety limit for the mower type.**

**First** — Inspect the area prior to mowing and remove stones, branches, wire, cable, metal, glass and other solid objects before operating. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator.

In non-crop areas with grass and weeds high enough to hide objects that could be struck by the blades, inspect the area and remove or mark large debris or obstacles.

Mow the area at an intermediate height. Inspect the area closely and remove or mark any remaining debris or obstacles. Mow again at desired final height.



Follow  
All Mower  
Safety Rules

**Second** — Mower-thrown object shielding must be used when operating near roads, parks, populated areas or other areas where thrown objects could injure bystanders or damage property. Follow the manufacturer's operator's manual.

**Third** — Cross diagonally when mowing through ditches, sharp dips, and drops. Raise the mower to prevent the mower blades from hitting the ground.

# Operate Safely

## Mower-Thrown Objects (continued)

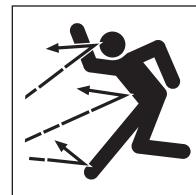
**Disc Mowers** — When using a disc mower it is important to know the area to be mowed. If the operator has mowed the field before and is familiar with all obstacles that may be present, it is sufficient to watch ahead of the mower path for any additional objects that may have entered the field. Be ready to stop or avoid any objects that could be hazardous if thrown by the mower. If you plan to mow an unfamiliar field and it is next to a traveled road or people may be within 100 ft (30 m) of the mower you must inspect, and clean or mark the field.

### Mowing In Reverse

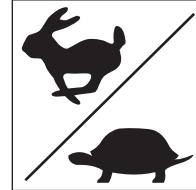
Do not mow while traveling in reverse. Objects are more likely to be thrown and can travel further.

Shut off the PTO, wait for the blades to stop turning, raise the mower, and then back up.

Mow traveling in the forward direction.



Do Not Mow in Reverse



Use Proper Ground Speed

### Mowing Ground Speed

Proper ground speed depends on terrain conditions and grass type, density and height to be cut:

- Normal ground speed range is 2 to 5 mph.
- Use slower ground speed for mowing tall, dense grass.
- Use faster ground speed for mowing medium height, thin grass and under smooth terrain conditions.
- Use slower ground speed for mowing in rough, sloping or unfamiliar terrain.

Disc mowers are designed to use faster ground speeds for operating in fields clear of debris and surface hazards.

# Operate Safely

## Extremely Tall Grass Mowing

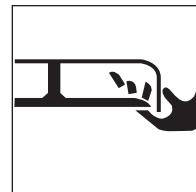
You may need to mow extremely tall, non-crop grass twice. (See page 13, **Mower-Thrown Objects**.)

First mowing pass:

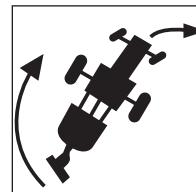
- Shut the mower and tractor down using proper equipment shut down practice before dismounting tractor. (See page 18, **Proper Equipment Shut Down Practices**.)
- Inspect the area and remove or mark debris and obstacles.
- Cut grass higher (10-15 inches) to avoid hidden objects.

Second mowing pass:

- Shut the mower and tractor down using proper equipment shut down practice before dismounting tractor.
- Inspect the area and remove or mark debris and obstacles.
- Cut grass at desired height and, when possible, 90 degrees to the first mowing pass.



Stop Blade Before Unclogging



Provide Adequate Clearance for Mower Swing

### Watch Equipment Clearances

Three-point hitch and side-mounted mowers have a larger turning arc than pull-type mowers. Allow sufficient clearance for mower swing while turning.

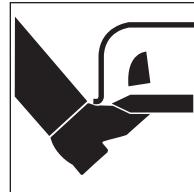
Do not allow bystanders near the tractor and mower when moving or transporting the tractor and mower.

# Operate Safely

## Under Mount Mower Safety Practices

When mowing with an under mount mower:

- Keep removable discharge chute in place and over discharge opening.
- Never stand on a mower housing when the tractor engine is operating.
- Distribute grass clippings with discharge chute facing mowed area.
- Before clearing a clogged mower or discharge chute, shut down your machine using proper equipment shut down practice. (See page 18, **Proper Equipment Shut Down Practices.**)



Never Stand  
on Mower –  
Keep Away



Keep Chute  
in Place



Stop Blade  
Before  
Unclogging

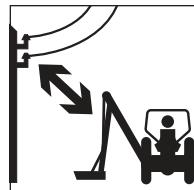
# Operate Safely

## Wing Or Boom Mower

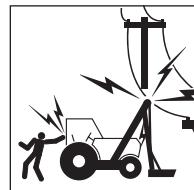
### Overhead Obstruction Hazards And Risks

Check for overhead obstructions with raised wing or boom mowers to avoid serious injury or death by contact with:

- Electrical power lines and apparatus.
- Low tree limbs.
- Other overhead obstructions.
- Maintain specified distance from power lines and apparatus. Never approach energized power lines or apparatus with any part of your machine unless all local, state/provincial and federal (OSHA) required safety precautions have been taken. Use extreme caution.



Do Not  
Approach Energized  
Power Lines



Stay Clear  
of Energized  
Equipment

**DANGER!** Avoid electrocution or serious injury from contact with or inadequate clearance to energized power lines or apparatus. **Do not allow the machine or attachment to approach or contact any power line.** **Do not approach or touch any machine in contact with a power line.**

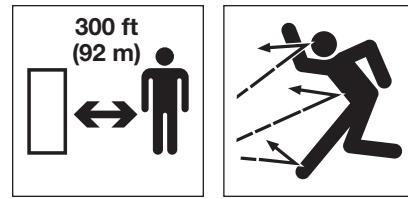
# Operate Safely

## Wing And Side Mount Mowers Safety Practices

Raised wing positions reduce shielding protection and increases the thrown object and blade contact hazard risks.

### Avoid possible serious injury or death by thrown objects or blade contact from raising and lowering wings during mowing operations:

- Do not mow with bystanders within 300 ft (92 m) of the mower.
- Be sure no one is near mower while raising or lowering wings.
- Shut off the PTO and wait for all rotating elements to stop before raising the mower deck or wing section.
- Only raise wing to clear objects in the mowing path or to match ground slope.
- Lower raised wing to ground after clearing object or ground slope conditions.
- Stop mowing if anyone approaches within 300 ft (92 m) of mowing area.



Keep Bystanders  
Away from  
Mowing Area



Avoid Hitting  
Obstructions

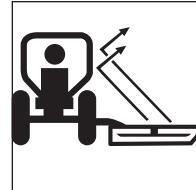
## Ditch Bank Mowing Safety Practices

Use extreme care when mowing ditch banks. Watch for washouts, eroded areas and mowing obstructions along the ditch banks. Hitting obstructions with side-mount or boom mowers may swerve the tractor's front end toward the ditch.

# Operate Safely

Raised wing and boom mower ditch bank operations may reduce the mower's thrown object shielding effectiveness for the mower operator's protection.

- Use enclosed ROPS cabs, special protective enclosures and other operator shielding available from the manufacturer when performing these operations.
- Inspect mowing area and remove or mark all foreign objects and debris to be avoided by mower.



Use  
Enclosed ROPS  
Cabs or Protective  
Enclosures

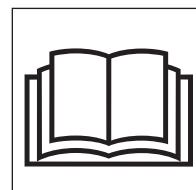
## Uneven Terrain Mowing Safety Practices

Tractor and mower stability is reduced on slopes and uneven terrain.

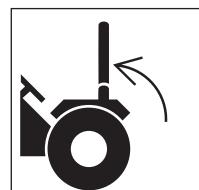
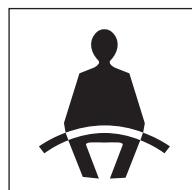
As in all conditions when mowing, use tractors equipped with ROPS and seat belt. **Make sure the ROPS are raised and locked in place and always wear your seat belt.**

Prevent tractor and mower overturns and maintain equipment stability control:

- Review tractor and mower operator's manuals for operating safety practices on slopes and uneven terrain conditions. Explain the practices to those users and operators who cannot read.
- Avoid extremely steep slope operations.



Read and  
Understand  
Manuals Before  
Operating



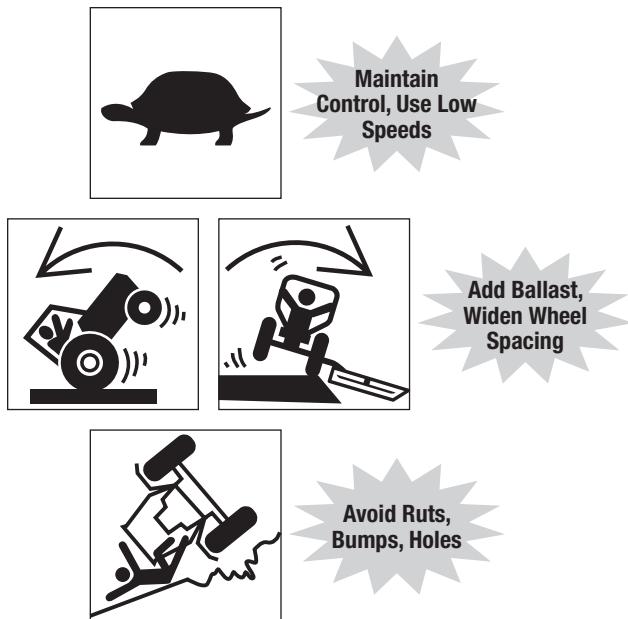
Use ROPS  
and Seat Belt

# Operate Safely

## Uneven Terrain Mowing Safety Practices (continued)

- Use extreme care to maintain control over the equipment when operating in these conditions.
- Increase tractor stability by adding wheel weights, ballast and increasing wheel spacing to maximum. Refer to operator's manual for recommendations.
- Maintain minimum ground speed.
- Make wide and gradual turns.
- Avoid sudden starts, stops, and turns when operating up, down, or across slopes.
- **Do not** raise rear-mount or side-mount mowers or mower wings from the ground during these operations.
- Keep alert for holes, bumps, ruts, rocks, stumps or other obstructions that could overturn the machine.
- Avoid slippery ground conditions that could cause loss of control and overturn of tractor and mower.
- Avoid bottoming and striking the ground by diagonal crossing of sharp dips and drops.

Use extreme care in maintaining equipment stability during all uneven terrain and slope mowing operations. You are the final judge as to any slope that can be safely negotiated.



# Operate Safely

## Road Transport Safety Practices

Before operating on public roads:

- Refer to tractor and mower manufacturers' operator's manuals for instructions.
- Explain the instructions to those users or operators who cannot read.
- Check local regulations for required equipment markings, lights, flashers, etc., while traveling on public roads. Lights are required on mowers that obscure tractor taillights and/or warning lights.
- When transporting the mower on a trailer, follow the manufacturer's detailed instructions for loading, tying down and unloading the mower.

Before transporting on public roads:

- Disengage PTO power to mower.
- Raise mower into transport position and engage transport lock.
- Lock mower wings in the transport position with approved locking devices.
- Attach towing safety chain between pull-type mower and tractor.
- Make sure lights, warning lights and reflectors are in place and visible.

- Check SMV (Slow-Moving Vehicle) emblem for visibility to any rear-approaching vehicle.

While transporting on public roads:

- Obey all local traffic regulations.
- Approach intersections with caution.
- Observe speed and traffic control signs.
- Avoid panic stops and sharp turns.

Be a courteous operator and pull over periodically and allow traffic to pass.



# Park Safely

## Parking Safety Practices

- Use designated or out-of-traffic areas.
- Use firm level ground locations.
- Set parking brake.
- Lower raised equipment to ground.

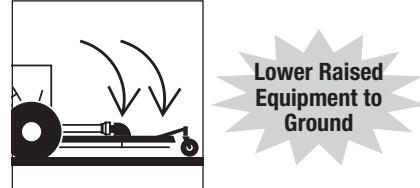
Shut down the mower and tractor using proper equipment shut down practice before dismounting tractor. (See page 18, **Proper Equipment Shut Down Practices.**)

Sloping ground parking locations:

- Position equipment across slope.
- Set parking brakes.
- Lower raised equipment to ground.
- Block tractor wheels.

Before temporarily parking and leaving disabled equipment near traffic areas:

- Remove equipment from public roads.
- Set out warning flags.
- Use tractor flashing warning lights.



# Shut Down Safely

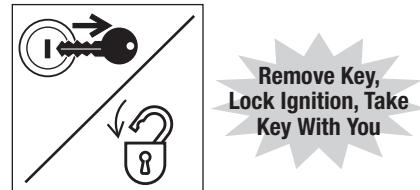
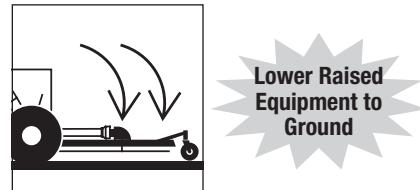
## Proper Equipment Shut Down Practices

Make proper equipment shut down an important habit.

Properly shutting down a tractor and mower can prevent accidents from occurring when the mower is left unattended. Shut down the mower following the specific procedures in the manufacturer's operator's manual.

These procedures will normally include:

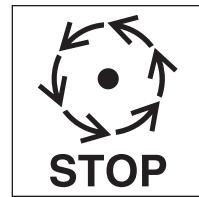
- Reduce engine speed.
- Disengage PTO clutch and transmission drive.
- Idle engine for gradual cooling.
- Place all controls in PARK position.
- Set the parking brake.
- Lower mower to ground.
- Lower wings of wing mowers to ground.
- Shut off engine, lock ignition and remove key from the machine and take it with you.
- Wait for all moving parts to stop before dismounting.
- Relieve hydraulic pressure by moving hydraulic controls several times in all directions.
- Lock anti-vandalism covers and closures, if equipped, when equipment is unattended.
- Dismount carefully maintaining three-point contact.



# Shut Down Safely

## Dismounting Properly

- Never dismount from moving equipment.
- Never jump from any machines.
- Dismount carefully.
- Check for slippery steps.
- Keep feet and hands away from controls.
- Use handholds and steps during dismount.
- Face machine and use three-point contact (2 hands and 1 foot or 2 feet and 1 hand).



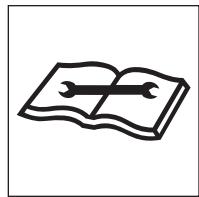
Wait for  
Moving Parts  
to Stop



Use Three-Point  
Contact,  
Face Machine

# Perform Maintenance Safely

## Maintain Your Equipment



Be sure to maintain the equipment according to manufacturer's instructions. Regularly check the operation of the protective and safety devices.

**Do not** perform any work on a tractor or mower unless you are authorized and qualified to do so.

If you have been authorized to do maintenance, **read the operator's and service manuals**. Study the instructions; check the lubrication charts; examine all the instruction messages on the machine. Maintenance can be hazardous unless performed properly. Be sure you have the necessary skill, information, correct tools and equipment to do the job.

**WARNING!** Do not modify equipment or add components not approved by the manufacturer. Use parts, lubricants and service techniques recommended by the manufacturer.

## Mower Parts And Your Safety

Mower manufacturers use specific fasteners and specially designed parts to meet mowing operations requirements. Critical parts (self-locking blade bolts, blades, pins, shields and other special items) have specific strength, design and fit requirements for the make and model mower you are using.

Avoid possible death or serious injury from unapproved parts or modifications:

- Do not substitute common hardware for original manufacturer's blade bolts or other special part items.
- Do not substitute for blades, pins, shields or other critical parts.
- Do not use higher strength bolts to replace original manufacturer's shear bolts.

# Perform Maintenance Safely

## Prepare Yourself

Wear personal protective clothing and Personal Protective Equipment (PPE) issued to you or called for by job conditions. You must **ALWAYS** wear safety glasses with side shields.

You may also need:

- Hard hat
- Safety shoes
- Safety glasses, goggles or face shield
- Apron and gloves
- Hearing protection
- Welding helmet or goggles
- Respirator or filter mask

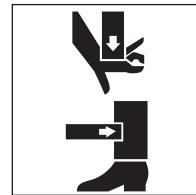
Wear whatever is needed—don't take chances.

**Keep hands—and clothing—away from all moving parts.** Don't wear dangling ties, loose sleeves, rings, watches, or long hair.

**WARNING!** Prevent death or serious injury from entanglement. **Do not wear loose clothing or accessories. Stay away from all rotating components when the engine is running.** Contact, wrapping or entanglement with rotating or moving parts could result in death or serious injury.



Avoid  
Rotating Parts



Avoid  
Pinch Points

# Perform Maintenance Safely

Wear a rubber apron and rubber gloves when working with corrosives. Wear gloves and safety shoes when handling wooden blocks or sharp-edged metal.

Always use safety glasses, goggles or a face shield. They provide eye protection from fluids under pressure, during grinding and while servicing batteries. Protection is also needed from flying debris, liquids and loose material produced by equipment, tools and pressurized air/water.

Wear a face shield and follow manufacturer's instructions when you disassemble spring-loaded components or work with battery acids. Wear a welding helmet or goggles with a shaded filter when you weld or cut with a torch.

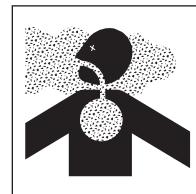
Do not sand, grind, flame-cut, braze or weld without a NIOSH-approved respirator or appropriate ventilation. If welding is required on this machine, refer to the manufacturer's operator's or service manuals or consult your equipment dealer for proper procedures.

Keep pockets free of all objects that could fall out—and drop into machinery.

Handle tools and heavy parts sensibly—with regard for yourself and other persons. Lower items—don't drop them.



Clean  
Slippery Surfaces



Ventilate  
Work Area

## Prepare The Work Area

- Position the mower in a level area out of the way of other working equipment.
- Make sure there is adequate light, ventilation and clearance.
- Remove oil, grease or water to eliminate any slippery surfaces.
- Clean around the area to be serviced to minimize contamination.

# Perform Maintenance Safely

## Prepare The Machine

Stored energy sources (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) must be controlled or reduced to a practical minimum before performing any maintenance, repair or service procedures.

### Safety practices to prevent potential injuries from energy-releasing sources:

- Disengage PTO before shutting off engine.
- Place controls in PARK or NEUTRAL before shutting off engine.
- Set parking brake or block wheels.
- Allow all moving parts to stop.
- Lower mower to ground.
- Lower wings to ground on wing mowers.
- Shut off tractor engine.
- Relieve hydraulic system pressure by moving controls several times in all directions.
- Lock ignition, remove key and take it with you.
- Look and listen for evidence of moving parts before dismounting.
- Securely support or block up mower before working underneath mower or other lifted components.

- Securely support, block up, or lock up mower wings with approved locking devices before working near or underneath a wing mower.
- Relieve pressure before disconnecting or disassembling any pressurized system.
- Block or relieve spring pressure before disassembling any spring-loaded mechanism.
- Securely support or block up any raised machine component before working on it.
- Avoid flames, sparks, or smoking near any fuel, hydraulic fluid or other flammable material such as mowing debris.



Prepare  
Machine Systems  
for Service

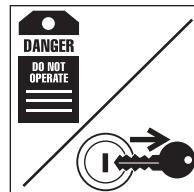
# Perform Maintenance Safely

Attach a “DO NOT OPERATE” warning tag to the control levers and remove the ignition key if the mower should not be operated. Take the key with you.

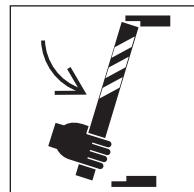
Install approved support device(s) when working under or near raised equipment.

**WARNING!** Unsupported raised mowers or other equipment may drop unexpectedly. **Never go under equipment when raised unless supported by an approved support device(s).** Death or serious crushing injury could result from falling equipment.

Remove only guards or covers that provide access to the area being serviced. Replace all guards and covers when work is complete.



Use a  
“Do Not Operate”  
Tag



Use  
Approved  
Support Device



Replace  
All Guards

# Perform Maintenance Safely

## Use Proper Ventilation

If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension. If you do not have an exhaust pipe extension, make sure you open the doors and get outside air into the area.

**WARNING!** Prevent possible injury. **Never work on machinery with the engine running unless instructed by the manufacturer's manuals for specific service.**

**WARNING!** Never operate any type of engine without proper ventilation—EXHAUST FUMES CAN KILL.

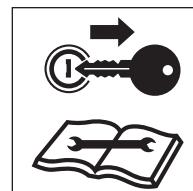
## Use Jacks And Hoists Carefully

Safety stands or blocks must be located on a rigid part of the mower. Do not position stands under axles or wheel supports that may rotate.

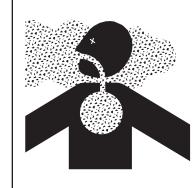
If you must work beneath raised equipment, always use wood—not concrete—blocks, jack-stands or other rigid and stable supports. When using jacks or hoists always be sure they are adequately supported.

**WARNING!** Prevent possible crushing injury. **Never use concrete blocks for supports.** They can collapse under even light loads.

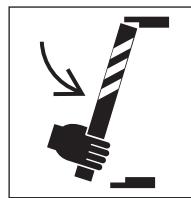
Make sure the hoists or jacks you use are in good repair. Never use jacks with cracked, bent, or twisted parts. Never use frayed, twisted or pinched cables. Never use bent or distorted hooks.



Remove Key and Read Maintenance Manual



Ventilate Work Area



Use Proper Support for Raised Equipment

# Perform Maintenance Safely

## Common Maintenance Safety Practices

### Fuel Hazards

**WARNING! Always use approved fuel containers and/or dispensing equipment.**

Fuels are flammable, so observe these practices to reduce the possibility of a serious accident.

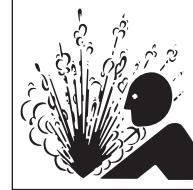
- Shut off engine and ignition during refueling.
- Always ground the fuel nozzle against the filler neck to avoid sparks.
- Keep sparks and open flames away from fuel.
- Do not smoke while refueling or when handling fuel containers.
- Do not cut or weld on or near fuel lines, tanks or containers.
- Do not overfill the tank or spill fuel. Clean up spilled fuel immediately.

Be sure to:

- Stop the engine and wait for the system to cool.
- Wear protective clothing and safety glasses.
- Turn the radiator cap slowly to the first stop to allow the pressure to escape before removing the cap completely.



No Smoking and No Open Flames



Remove Radiator Cap Slowly

### Engine Coolant Hazards

Liquid cooling systems build up pressure as the engine gets hot, so **use extreme caution before** removing the radiator cap.

# Perform Maintenance Safely

## Hydraulic System Hazards

The hydraulic system is under pressure whenever the engine is operating and may hold pressure even after the engine is shut off. Cycle all hydraulic controls including the auxiliary hydraulic control after the engine is shut down. Relieve trapped pressure in the lines after the attachments are shut down and resting on the ground.

During inspection of the hydraulic system:

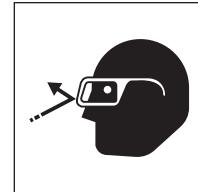
- Wait for fluid to cool before disconnecting the lines. Hot hydraulic fluid can cause SEVERE BURNS.
- **Do not** use your hand to check for leaks. Instead, use a piece of cardboard or paper to search for leaks.
- Wear appropriate eye protection. Hydraulic fluid can cause permanent eye injury.

**WARNING!** Hydraulic fluid under pressure can penetrate the skin or eyes and cause serious injury, blindness or death. Fluid leaks under pressure may not be visible.

**Use a piece of cardboard or wood to find leaks, not your hand. Wear a face shield or safety goggles for eye protection.** If fluid is injected into the skin, it must be removed within a few hours by medical personnel familiar with this type of injury.

When venting or filling the hydraulic system, loosen the filler cap slowly and remove it gradually.

**Never** reset any relief valve in the hydraulic system to a pressure higher than recommended by the manufacturer.



**Wear Eye Protection**



**High Pressure Fluid Can Inject Into the Body**

# Perform Maintenance Safely

## Electrical System Hazards

Before working on the electrical system, disconnect the battery cable(s).

- Remove the battery negative (-) cable(s) first.
- When reconnecting the battery, connect the battery negative (-) cable(s) last.

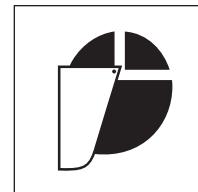
The liquid in batteries contains acid, which is a POISON and can cause SEVERE CHEMICAL BURNS.

## Avoid Injury

- Wear a face shield to prevent contact with your eyes.
- Wear chemical-resistant gloves and clothing to keep electrolyte off your skin and regular clothing.

**WARNING!** Electrolyte will damage eyes or skin on contact. **Always wear a face shield to avoid electrolyte in eyes.** If electrolyte contacts eyes, flush immediately with clean water and get medical attention. **Wear chemical-resistant gloves and protective clothing to keep electrolyte off skin.** If electrolyte contacts exposed skin or clothing, wash off immediately

with clean water. **If electrolyte is ingested,** seek medical attention immediately. NEVER give fluids that would induce vomiting.



**Wear Face Protection**



**Wear Protective Clothing**

# Perform Maintenance Safely

## Avoid Explosion

**WARNING!** Avoid possible serious injury from explosion. Lead-acid batteries produce extremely explosive gases especially when being charged. **Keep arcs, sparks, flames and lighted tobacco away.**

- Do not smoke near batteries.
- Keep arcs, sparks and open flames away from batteries.
- Provide adequate ventilation.

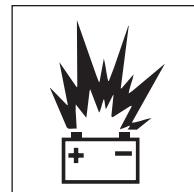
**Never** check the battery by placing a metal object across the battery posts — the resulting spark could cause an explosion.

**WARNING!** Avoid possible serious injury from battery explosion. **Do not charge a battery or boost start the engine if the battery is frozen.** Warm to 60°F (15.5°C) or the battery may explode and could cause serious injury.

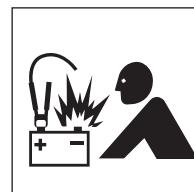
Safety rules during battery boost starting:

- Follow the instructions for proper “battery boost starting” as specified in the manufacturer’s manual.
- Be sure the machines are not touching.

- Observe the polarity of the batteries and connections.
- Make the final cable connection to the engine or the furthest ground point away from the battery. Never make the final connection at the starter or dead battery—sparks may ignite the explosive gases present at the battery.
- When disconnecting cables after jump starting, remove the cables in reverse order of connection (e.g., final connection first).



Avoid Sparks  
and Open Flames  
Near Batteries



For  
Boost Starting  
Observe Polarity  
and Make Final  
Connection at  
Ground Point

# Perform Maintenance Safely

## Tire And Wheel Maintenance

Check your tires and wheels daily because the stability of the tractor and mower can be dramatically affected by tire pressure or damage to tires or wheels.

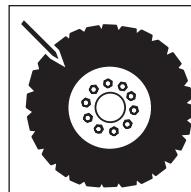
Check tires for:

- Correct pressure.
- Cuts and bulges.
- Nails or other punctures.
- Uneven or excessive wear.
- Condition of valve stems and caps.

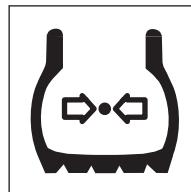
Check wheels for:

- Damage to the rims.
- Missing or loose lug nuts or bolts.
- Misalignment.

All tire service should be performed by a qualified tire service center or by an authorized service person who has been properly trained in the procedures and use of safety equipment designed for tire servicing.



Check Tires  
and Wheels for  
Damage



Maintain  
Proper Tire  
Pressure

# Perform Maintenance Safely

## Tire And Wheel Maintenance (continued)

**WARNING!** The types of wheels and tires usually found on this equipment require special care when servicing to prevent death or serious injury.

Do not inflate the tires above the recommended pressure. Be sure to replace tire ballast if equipped. See manufacturer's specifications for ballast requirements.

Keep wheel lug nuts tightened to manufacturer's recommendations.

A rise in tire pressure during operation is normal, and should NOT be reduced.

Never reinflate a tire that has been run flat or seriously underinflated without removing the tire from the wheel. Have the tire and wheel closely inspected for damage before remounting.

When adding air to a tire, do so from a distance. Use a long hose with self-attaching chuck. Always stand behind tread when adjusting tire pressure.

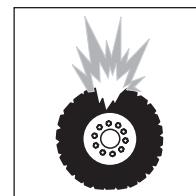
Do not inflate tires with flammable gases or from systems using an alcohol injector.

Never cut or weld on a wheel with an inflated tire mounted on it. This could cause explosive decompression.

Check that the tire size and wheel are correctly matched.

When replacing the tires, ensure the tires are of the appropriate rating specified by the manufacturer.

Tires should not be operated at speeds higher than their rated speed. Most agricultural tires are rated for 20mph maximum speed.



Avoid  
Tire Explosion

# Perform Maintenance Safely

## Complete Service And Repairs Before Machine Is Released

Tighten all bolts, fittings, and connections to torques specified by the manufacturer.

Install all guards, covers, and shields after servicing. Replace or repair any damaged parts. Refill and recharge pressure systems only with manufacturer approved or recommended fluids.

Start the engine and check for leaks. (See page 23, **Hydraulic System Hazards.**) Operate all controls to make sure the tractor and mower are functioning properly. Test the machine if necessary. After testing, shut down and check the work you performed. Are there any missing cotter pins, washers, locknuts, etc.? Recheck all fluid levels before releasing the equipment for operation.

All parts should be inspected during repair and replaced if worn, cracked or damaged. Excessively worn or damaged parts can fail and cause injury or death.

Replace any damaged or illegible safety signs.



Verify  
Service Work  
When  
Completed

## Mower Blade Maintenance

Do not take chances using damaged or bent blades. The mower manufacturers from the Association of Equipment Manufacturers (AEM) and the Farm Equipment Manufacturers Association (FEMA) advocate that you DO NOT reuse, straighten, hard face or weld mower blades. Death or serious injury could result if a broken blade is thrown from a mower.

# Perform Maintenance Safely

## Mower Blade Maintenance (continued)

### — How are mower blades made?

Mower blades are made of high strength alloy spring steel. They are hot-forged and shaped to meet the manufacturer's individual specifications, then heat treated and tempered to a high strength, ductile state to reduce the possibility of breaking while mowing. Blades are tested to ensure they meet strength, hardness, and ductility standards. If a blade fails to meet any of these specifications, it will not be used on the mower.

### — What happens when a mower blade bends?

It takes a great amount of impact force to bend the blade. This impact force often results in the blades being gouged or chipped. After a blade is damaged by a gouge or chip a blade failure is much more likely to occur. When a blade is severely bent, a microscopic crack may be created in the blade. Straightening the blade does not remove or repair this crack, but may cause additional cracks. Additional stresses during mowing operations can result in an unexpected blade failure.

- **Avoid bending blades.** Help prevent mower blades from bending or cracking by avoiding contact with solid objects. Mower blades are intended to cut grass, shrubs, woody vegetation, and small trees and limbs. They are not intended to contact solid objects such as rocks, concrete, or steel posts. Inspect the area prior to mowing. Remove or clearly mark any solid objects and mow around them.
- **Replace damaged blades!** Inspect the mower blade(s) daily or after hitting any solid object. If a mower blade becomes damaged (bent, gouged, cracked) or worn more than 25 percent of the original size, it should be removed and replaced with a new blade. Always use the original manufacturer's blades. Aftermarket brand blades may not meet the mower manufacturer's strength, hardness and ductility requirements.
- **Do not take chances mowing with damaged or bent blades.** Using a damaged or straightened mower blade can result in the blade breaking and being thrown into the operator or a bystander causing death or serious injury. The price of a new blade is small compared to the potential for the serious injury that could result from a bent or broken blade being thrown from the mower.

## Final Word To The User

You have just finished reading the AEM Industrial and Agricultural Mower Manual. It is impossible for this manual to cover every safety situation that you may encounter on a daily basis. Your knowledge of these safety precautions and your application to the

basic rules of safety will help to build good judgment in all situations. Our objective is to help you develop, establish and maintain good safety habits to make operating an Industrial and Agricultural Mower easier and safer for you.

This manual is another in a series on the safe operation of machinery published by AEM. Many pictorials in this safety manual can be found and downloaded at <http://pictorials.aem.org>. For additional publications visit our website at [www.safetymaterials.org](http://www.safetymaterials.org).



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CORTADORA  
DE CÉSPED INDUSTRIAL/  
PARA AGRICULTURA

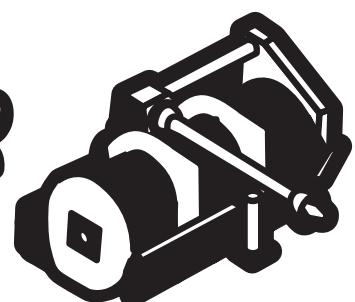
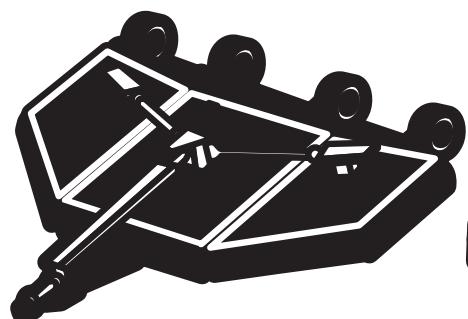
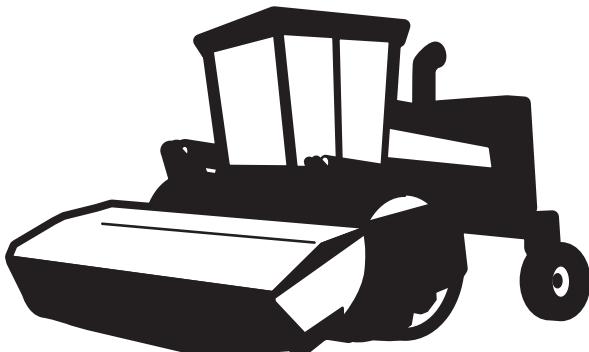
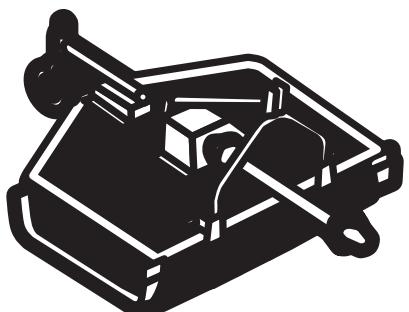
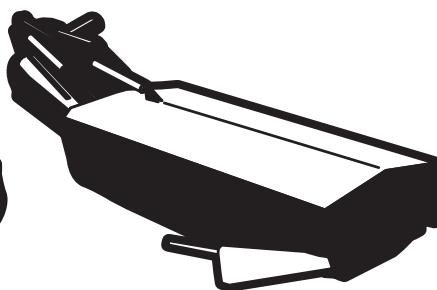
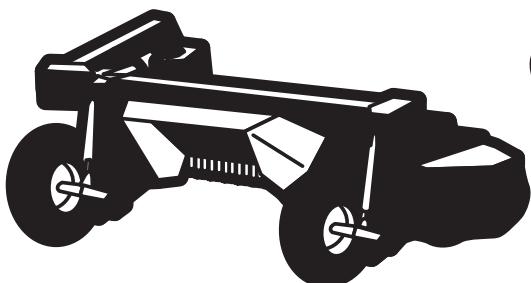


[www.aem.org](http://www.aem.org)



# MANUAL DE SEGURIDAD

PARA EL PERSONAL DE OPERACIONES Y MANTENIMIENTO



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## Reconocimiento

Deseamos reconocer las contribuciones de los miembros del Consejo de Fabricantes de Cortadoras de Césped Industriales/para Agricultura para la preparación de este Manual de seguridad.

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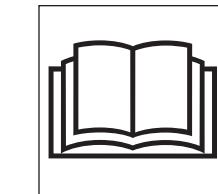
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Revisado el 01/03, 09/10

## Introducción

Este manual de seguridad está destinado a señalar algunas de las situaciones de seguridad básicas que pueden surgir durante la operación y el mantenimiento normales de la máquina y a instruirlo en prácticas de seguridad para manejar estas condiciones. Este manual **NO** sustituye los manuales del operador del fabricante de la cortadora de césped.

Puede ser necesario tomar precauciones adicionales o algunas de las instrucciones pueden no ser pertinentes, dependiendo del equipo, los accesorios y las condiciones del sitio de trabajo o del área de servicio. El fabricante no tiene control directo sobre la aplicación, la operación, la inspección o el mantenimiento del equipo. Por lo tanto, es **SU** responsabilidad utilizar prácticas de seguridad correctas en estas áreas.

La información que se proporciona en este manual complementa la información específica sobre la máquina que contienen los manuales del operador del fabricante. Puede haber otra información que afecte la operación segura de la máquina en los letreros de seguridad o en los requisitos del seguro, programas de seguridad y capacitación del empleador, códigos de seguridad, leyes federales, locales, estatales o provinciales, reglas y ordenanzas.



Lea y asegúrese  
de comprender los  
manuales antes  
de comenzar la  
operación

**¡IMPORTANTE!** Antes de hacer funcionar la cortadora de césped, asegúrese de contar con los manuales del operador del fabricante para esta máquina y todos los accesorios. Si faltan los manuales del fabricante, solicite manuales de repuesto a su empleador, al concesionario de los equipos o directamente al fabricante. Guarde este manual de seguridad y los manuales del fabricante con la máquina en todo momento. Lea y asegúrese de comprender todos los manuales.

Se encuentra disponible el video AEM Mower Safety Practices (Prácticas de seguridad para la cortadora de césped de AEM) para capacitar y reforzar prácticas de seguridad correctas. Se anima a los operadores a ver periódicamente el video de seguridad.

# Alertas de seguridad

## Símbolo

Este símbolo de alerta de seguridad significa:  
**“¡ATENCIÓN! ¡MANTÉNGASE ALERTA! ¡SU  
SEGURIDAD ESTÁ EN RIESGO!”**

El símbolo de alerta de seguridad identifica mensajes de seguridad importantes sobre el equipo, sobre letreros de seguridad, en manuales u otros lugares. Cuando vea este símbolo, manténgase alerta ante la posibilidad de muerte o lesiones personales. Siga las instrucciones del mensaje de seguridad.



Motivos por los cuales la seguridad es importante:  
– Los accidentes provocan discapacidad y muerte.  
– Los accidentes cuestan.  
– Los accidentes pueden evitarse.

## Palabras indicativas

Las palabras indicativas son palabras distintivas que típicamente se encontrarán en letreros de seguridad de la cortadora de césped y otros equipos del sitio de trabajo. Estas palabras también se pueden encontrar en este manual y en los manuales del fabricante. Están destinadas a alertar al operador sobre un riesgo y el grado de gravedad del riesgo.



**DANGER (PELIGRO)** indica una situación riesgosa que, si no se evita, resultará en una lesión grave o la muerte.



**WARNING (ADVERTENCIA)** indica una situación riesgosa que, si no se evita, podría resultar en una lesión grave o la muerte.



**CAUTION (PRECAUCIÓN)** indica una situación que, si no se evita, podría resultar en lesiones leves o moderadas.



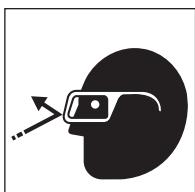
**NOTICE (AVISO)** indica un mensaje de daños a la propiedad.

## Palabras para el usuario/operador

Es **SU** responsabilidad leer y asegurarse de comprender el manual de seguridad y los manuales del fabricante antes de hacer funcionar esta máquina. Este manual de seguridad lo lleva paso a paso a través de su día de trabajo.

**El reconocimiento de los riesgos y la prevención de accidentes** dependen de que usted esté alerta, sea cuidadoso y se capacite correctamente para la operación, el transporte, el mantenimiento y el almacenamiento de este equipo.

Se han suministrado gráficos útiles para comprender el texto.



Lea y asegúrese de comprender todos los letreros de seguridad

Recuerde que **USTED** es la clave de la seguridad. Las prácticas de seguridad correctas lo protegen no sólo a usted sino también a las personas que lo rodean. Estudie este manual y los manuales del fabricante para su máquina en particular. Transfórmelos en una parte activa de su programa de seguridad. Tenga presente que este manual de seguridad está escrito para cortadoras de césped industriales/para agricultura.

Contáctese con el fabricante del equipo si le queda alguna pregunta sobre la operación segura después de estudiar los manuales del operador del fabricante y este manual de seguridad.

**Tome todas las demás precauciones habituales y acostumbradas para un trabajo seguro y, sobre todo:**

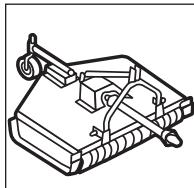
**RECUERDE:  
¡LA SEGURIDAD DEPENDE DE USTED!**

**¡PUEDE EVITAR LESIONES GRAVES O MUERTE  
CAUSADAS POR PRÁCTICAS LABORALES  
NO SEGURAS!**

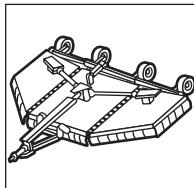
# Cortadora de césped industrial/para agricultura

## Tipos de cortadora de césped industrial/para agricultura

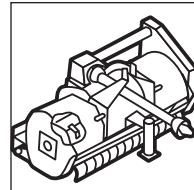
Las cortadoras de césped se usan para recortar pasturas, desmenuzar residuos de cultivos, cortar arbustos, realizar desbroce pesado, cortar la hierba en vías de agua, derechos de paso, costados de caminos o autopistas. Además, estas cortadoras se usan para cortar la hierba y otras plantas en zonas públicas como parques y cementerios.



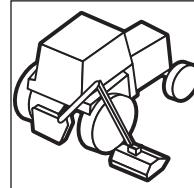
Giratorio



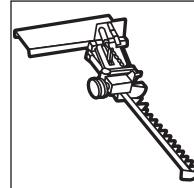
Giratorio con lateral plegable



Triturador



Aguilón



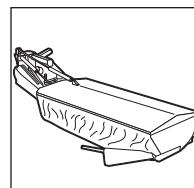
Barra en forma de hoz

# Cortadora de césped industrial/para agricultura

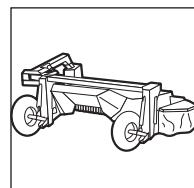
## Tipos de cortadora de césped de disco para agricultura

Las cortadoras de césped de disco están diseñadas y equipadas para cortar cultivos de heno a mayor velocidad de desplazamiento.

Las cortadoras/acondicionadoras de disco cortan y acondicionan los cultivos.

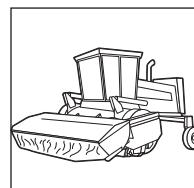


Cortadora de césped de disco



Cortadora/acondicionadora de disco

Las formadoras de hileras autopropulsadas cortan el heno y lo acondicionan en hileras.



Formadora de hileras autopropulsada

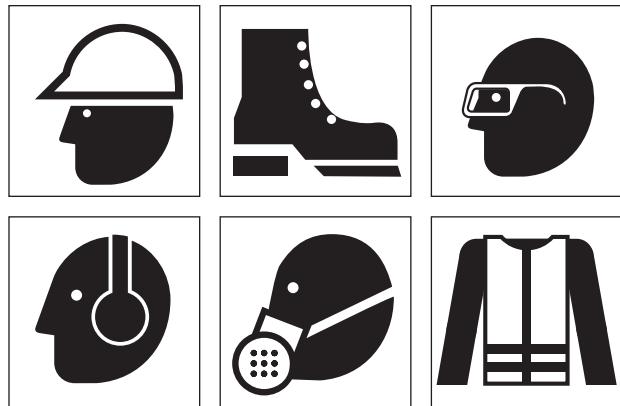
# Cumplimiento del programa de seguridad

## Protéjase a sí mismo

Use la ropa de protección personal y los equipos de protección personal (PPE) que se le proporcionen o que requieran las condiciones del trabajo. **SIEMPRE** debe usar gafas de seguridad con escudos laterales.

Puede necesitar también:

- Casco
- Calzado de seguridad
- Antiparras de seguridad o protección facial
- Guantes gruesos
- Protección para oídos
- Indumentaria reflectiva
- Indumentaria impermeable
- Respirador o máscara con filtro



Use la ropa necesaria; no corra ningún riesgo.

**¡ADVERTENCIA!** Evite lesiones graves o muerte por enredos. **No use ropa floja ni accesorios. Ate el cabello largo. Manténgase alejado de todos los componentes giratorios cuando el motor está en funcionamiento.** El contacto, el enrollado o el enredo con piezas giratorias o móviles podrían resultar en lesiones graves o la muerte.



# Cumplimiento del programa de seguridad

- Lea, asegúrese de comprender y siga las instrucciones escritas del fabricante que se encuentran en el manual del operador y en los letreros de seguridad sobre la cortadora y el tractor.
- Obtenga capacitación para la operación de la cortadora y el tractor.
- Aproveche los programas de capacitación que se ofrecen en su zona.
- Solicítelle al distribuidor de equipos o al supervisor que le explique cualquier información que no comprenda.
- Explique las instrucciones escritas de los manuales del operador y los letreros de seguridad a los usuarios u operadores que no puedan leerlas.
- Inspeccione la cortadora y el tractor diariamente antes de hacerlos funcionar. Asegúrese de que todas las guardas se encuentren en su lugar y de que el equipo funcione correctamente.
- Nunca fume mientras lo está manejando. Nunca llene el depósito de combustible con el motor en funcionamiento o cerca de una llama abierta.
- Asegúrese de tener visibilidad adecuada e iluminación suficiente.
- Sepa cuáles son los puntos donde puede quedar atrapado y las partes giratorias. Su conocimiento puede evitar accidentes.

- Nunca intente hacer funcionar los controles, excepto desde el asiento del operador. Las funciones controladas de manera incorrecta pueden producir el movimiento imprevisto de la máquina y resultar en lesiones graves o muerte.
- Apague la cortadora y el tractor antes de descender. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)



# Cumplimiento del programa de seguridad

## Evite las lesiones provocadas por equipos elevados

Evite posibles lesiones de aplastamiento por caídas de la cortadora u otros equipos elevados.



Evite ser aplastado –  
Bloquee o apoye con seguridad la cortadora

Antes de trabajar cerca o debajo de partes levadas de la cortadora o de los equipos:

- Apoye o bloquee con seguridad las partes elevadas de la cortadora o los equipos de acuerdo con el manual del operador.
- Apoye, bloquee o trabe con seguridad los laterales con dispositivos de bloqueo aprobados o descienda las partes de la cortadora o de los equipos hasta el suelo.
- Use trabas de transporte cuando transporte la cortadora por la vía pública.

## Evite lesiones producidas por líquidos a alta presión

Evite las lesiones por inyección de fluidos debidas a fugas de líquidos a alta presión.



El fluido a alta presión puede inyectarse en el cuerpo

Si un fluido se inyecta en la piel, debe ser extraído dentro de pocas horas por personal médico familiarizado con este tipo de lesión.

Las fugas de fluido bajo presión pueden no ser visibles. Al verificar en busca de fugas o cuando trabaja cerca de sistemas presurizados:

- Lea las prácticas de seguridad recomendadas en los manuales del operador del fabricante.
- Use una protección facial o antiparras de seguridad para proteger los ojos.
- Use un cartón o una madera para buscar fugas; **NO use las manos.**
- Alivie la presión del sistema antes de desconectar líneas.
- Busque y repare las líneas, los tubos y las mangueras dañados o con fugas.
- Busque y apriete las conexiones flojas.
- Purgue el aire del sistema antes de hacerlo funcionar.

# Cumplimiento del programa de seguridad

## Evite lesiones por incendios y explosiones

Aplique el freno de estacionamiento, apague el motor de la cortadora y del tractor y retire la llave mientras llena el depósito de combustible. Tenga precaución adicional cuando carga combustible en un motor caliente. Nunca fume mientras carga combustible. Evite las chispas conectando a tierra la boquilla de combustible contra el cuello de llenado del depósito.

Los vapores de un depósito de combustible vacío son explosivos. Nunca suelde o realice cortes en líneas, depósitos o contenedores de combustible.

Retire toda la basura o los residuos de corte de la máquina todos los días o según sea necesario. Mantenga los residuos alejados del motor, el escape, los embragues y otras fuentes de calor. Use supresores de chispas, según corresponda, en el sistema de escape del motor. Asegúrese de que no haya trapos con aceite u otro material inflamable almacenado en la máquina.

Revise en busca de fugas de combustible, aceite o fluido hidráulico. Repare las fugas y límpie la máquina antes de hacerla funcionar.

El éter/fluido para arranque en frío es inflamable. No fume cuando usa éter/fluido para arranque en frío. Siempre siga las instrucciones del recipiente y de los manuales del

operador del fabricante correspondientes a la cortadora de césped. No use éter/fluido para arranque en frío si el motor está equipado con bujías de precalentamiento u otro dispositivo de precalentamiento.

Siempre use solvente no inflamable para limpiar las partes. No use gasolina, combustible diesel u otros fluidos inflamables. Almacene todos los fluidos y materiales inflamables lejos de la máquina y de la zona de trabajo.

Sepa dónde se guardan los extintores de incendios, cómo funcionan y para qué tipo de incendio están destinados. Verifique la disponibilidad de los extintores de incendios de acuerdo con las instrucciones del fabricante. Asegúrese de que cada tractor esté equipado con un extintor de incendios.



No fumar;  
evitar las llamas abiertas



Retire los residuos a diario o según sea necesario

# Cumplimiento del programa de seguridad

## ¡Manténgase alerta!

Sepa dónde obtener asistencia. Sepa cómo usar un equipo de primeros auxilios y un extintor de incendios/sistema de supresión de fuego.

## ¡Manténgase informado!

Aproveche los programas de capacitación que se ofrecen.

## ¡Tenga cuidado!

El error humano es causado por muchos factores: descuido, fatiga, sobrecarga, preocupación, desconocimiento de la máquina por parte del operador, fármacos y alcohol, entre muchos otros. Los daños al tractor o la cortadora de césped se pueden arreglar en un tiempo breve, pero las lesiones o la muerte tienen un efecto perdurable.

Por su seguridad y la de los demás, aiente a sus compañeros de trabajo a actuar con seguridad.



Nunca use  
fármacos o alcohol  
mientras está  
operando la máquina

## Para una operación segura

Usted debe ser un operador cualificado y autorizado para operar la máquina correctamente. Debe comprender claramente las instrucciones por escrito que proporciona el fabricante, recibir capacitación (que incluya la operación real de la cortadora de césped) y conocer las reglas y ordenanzas de seguridad correspondientes al sitio de trabajo. Una buena práctica de seguridad consiste en señalar y explicar los letreros y las prácticas de seguridad y asegurarse de que otras personas comprendan la importancia de seguir estas instrucciones.

**¡ADVERTENCIA!** Los fármacos y el alcohol afectan la capacidad de alerta y de coordinación del operador, así como su capacidad para operar los equipos con seguridad. **Nunca use fármacos o alcohol mientras opera el equipo de la cortadora. Nunca permita a sabiendas que otra persona opere esta máquina con la capacidad de alerta o coordinación deteriorada.** Un operador que toma un medicamento recetado o de venta libre debe consultar a un profesional médico con respecto a los efectos colaterales del medicamento que podrían reducir su capacidad de operar este equipo con seguridad.

# Cumplimiento del programa de seguridad

## Conozca las reglas

La mayoría de los empleadores tienen reglas que rigen la operación y el mantenimiento de los equipos. Antes de comenzar a trabajar en una ubicación nueva, verifique con el supervisor o con el coordinador de seguridad. Averigüe sobre las reglas que tendrá que obedecer.

La Administración de Seguridad y Salud Ocupacional (Occupational Safety and Health Administration, OSHA) hace cumplir leyes federales dentro de los EE.UU. que se aplican a la operación, la aplicación y el mantenimiento seguros de equipos en un sitio de trabajo. Es responsabilidad del empleador cumplir estas leyes. Un representante de OSHA puede visitar periódicamente un sitio de trabajo para ver si estas leyes se cumplen.

También puede haber leyes estatales/provinciales o locales u ordenanzas internacionales que se apliquen a este equipo y a su uso, junto con reglas específicas del sitio de trabajo o del empleador. Es importante que conozca y cumpla todas las leyes y reglas aplicables, incluso las que requieren capacitación y certificación del operador.

### Las siguientes son algunas de las reglas que debe cumplir al trabajar:

- Un ROPS (sistema de protección antivuelco) y un tractor equipado con cinturón de seguridad es exigencia del

gobierno federal (OSHA) para la protección de los operadores durante el funcionamiento de la cortadora. Una cabina cerrada proporciona protección adicional para el operador con respecto a objetos arrojados. Verifique el manual del operador de la cortadora de césped para ver si también se requiere una cabina de tractor.

- Use y verifique que otras personas usen la indumentaria y los equipos de protección personal correctos.
- Inspeccione la máquina y los accesorios antes de cada uso según lo especificado por el fabricante y por su empleador.
- Conozca las limitaciones y las características operativas del equipo de corte de césped. No haga un uso indebido.
- Verifique que todos los escudos y las guardas estén correctamente instalados antes de hacer funcionar la máquina.
- Nunca modifique o retire partes de la máquina (excepto para realizar servicios; después, asegúrese de que se vuelvan a colocar en su lugar).

### Reglas de seguridad

• —	• —
• —	• —
• —	• —
• —	• —
• —	• —

Sepa cuáles son y asegúrese de comprender las reglas de funcionamiento

# Cumplimiento del programa de seguridad

## Algunas reglas que debe cumplir al trabajar

### (continuación)

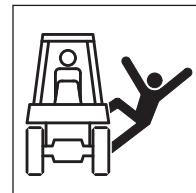
- Únicamente personas cualificadas y autorizadas pueden manejar estos equipos.
- **Nunca permita que los niños jueguen** en los equipos, **viajen** en ellos o los hagan **funcionar**. Los niños **no están** cualificados para manejar estos equipos.
- **No** transporte pasajeros.
- Use contacto en tres puntos (asideros y peldaños) y enfrente el equipo al ascender o descender de él.
- Mantenga a las personas ajenas a 300 pies (92 m) de la operación de corte.
- Familiarícese con el sitio de trabajo antes de usar la cortadora de césped. Tenga en cuenta posibles riesgos que puede encontrar en el terreno. Retire o marque los obstáculos y residuos que podrían dañar la cortadora o ser arrojados por ella.
- Utilice sólo accesorios y partes aprobados por el fabricante de la cortadora de césped.
- Asegúrese de que todos accesorios estén descendidos, aplique el freno de estacionamiento, apague el motor y haga funcionar todas las palancas de control. Retire la llave antes de salir del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)
- Cuando transporte la cortadora de césped en un remolque, siga las instrucciones detalladas del fabricante para la carga, el amarre y la descarga de la cortadora.



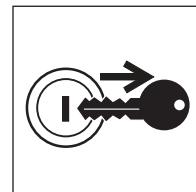
Mantenga a los niños alejados de los equipos



Mantenga a las personas ajenas alejadas



No lleve pasajeros

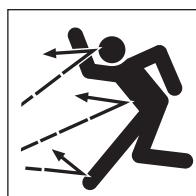


Apague los equipos cuando están sin vigilancia

# Cumplimiento del programa de seguridad

## Conozca los equipos

Lea y asegúrese de comprender los letreros de seguridad que indican PELIGRO, ADVERTENCIA, PRECAUCIÓN y AVISO y otros letreros informativos que hay sobre el tractor y la cortadora de césped y en el manual del operador del fabricante. Solicítelle al supervisor o al distribuidor de la cortadora que le explique cualquier información que no comprenda. El incumplimiento de las instrucciones de seguridad podría resultar en lesiones graves o muerte.



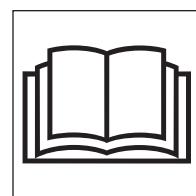
Lea y asegúrese de comprender todos los letreros de seguridad



Asegúrese de que todas las estructuras de protección, guardas, escudos, pantallas y paneles del fabricante están bien reparados, en su lugar y bien ajustados. Los componentes de seguridad dañados, faltantes o debilitados pueden crear una situación de riesgo para usted como operador. **Nunca** retire o modifique ningún componente de seguridad (incluso escudos para objetos arrojados) que haya en la cortadora.

## Conozca lo siguiente sobre el tractor y la cortadora de césped:

- Funcionamiento, propósito y uso de todos los controles.
- Velocidades de funcionamiento correctas.
- Capacidades y funcionamiento correcto en pendientes y terrenos desparejos.
- Características del frenado y la dirección.
- Radio de giro y separaciones.
- Cómo detener los equipos rápidamente en una emergencia.



Lea y asegúrese de comprender los manuales antes de comenzar la operación

# Preparación para una operación segura

## Revise los equipos de la cortadora de césped y el tractor

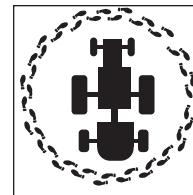
Antes de comenzar la jornada de trabajo, inspeccione la máquina y asegúrese de que todos los sistemas estén en buenas condiciones operacionales.

**¡ADVERTENCIA!** Evite posibles lesiones por aplastamiento producidas por equipos que caen. La falla del sistema hidráulico o de una parte podría causar la caída de equipos que no están apoyados. **No permanezca debajo de equipos elevados excepto que estén correctamente apoyados de acuerdo con el manual del operador.**

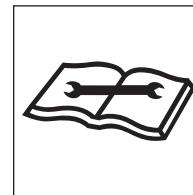
- Realice procedimientos de servicio diarios y periódicos según lo indicado por el fabricante del equipo.
- Verifique para detectar piezas faltantes, dañadas, rotas o flojas en el tractor y en la cortadora de césped. Repare o sustituya esas piezas.
- Verifique que los accesorios del tractor y la cortadora sean los correctos.
- Verifique que la clasificación nominal de velocidad de TDF del tractor y la cortadora sea la correcta.
- Verifique el estado de las hojas de la cortadora de césped. Sustituya las hojas que se encuentren gravemente gastadas, dobladas, agujereadas o

marcadas; incluya los pernos y sujetadores de las hojas. Nunca enderece o suelde en las hojas.

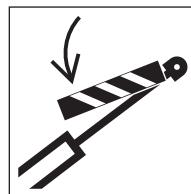
- Asegúrese de que el escudo para objetos que son arrojados se encuentre correctamente instalado y en buen estado. Repárelo o sustitúyalo si está dañado o falta.



Recorrida de inspección



Realice el mantenimiento de la máquina



Lea el manual –  
Bloquee o apoye con seguridad la cortadora

# Preparación para una operación segura

- Verifique que todos los escudos y guardas estén en su lugar y que todos los equipos se encuentren en buenas condiciones de funcionamiento. Esto incluye la línea motriz de la TDF, la caja de engranajes y las guardas y escudos de los implementos que se usan para proteger al operador.
- Verifique que los dispositivos de bloqueo del extremo en horquilla de la línea motriz estén correctamente enclavados.
- Verifique en busca de sistemas hidráulicos dañados o con fugas en el tractor o la cortadora. Repare o ajuste según sea necesario.

**¡ADVERTENCIA!** El fluido hidráulico bajo presión puede penetrar la piel o los ojos y causar lesiones graves, ceguera o la muerte. Las fugas de fluido bajo presión pueden no ser visibles. **Utilice un cartón o una madera para buscar fugas, no la mano. Use protección ocular.** Si el fluido se inyecta en la piel, debe ser extraído dentro de las próximas pocas horas por personal médico familiarizado con este tipo de lesión.

- Mantenga la superficie de la plataforma del operador limpia y libre de grasa, aceite, suciedad, nieve o hielo. Los peldaños y asideros deben estar limpios y funcionar correctamente.
- Asegúrese de que las luces de trabajo se mantengan limpias (si están instaladas). Verifique que todas las luces funcionen correctamente.

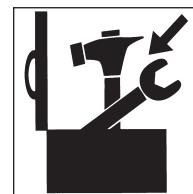
- Asegúrese de que el letrero de vehículo de movimiento lento, los y las luces de advertencia estén en buenas condiciones y puedan verse claramente.
- Asegúrese de que todas las herramientas y objetos sueltos se retiren o se sujeten con seguridad mientras se opera la máquina.
- Verifique que todos los letreros de seguridad se vean con claridad. Sustituya los letreros dañados.



Revise para detectar/guardas y escudos dañados



Verifique en busca de fugas e inspeccione las mangueras

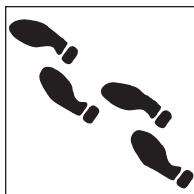


A parte las reflectores herramientas

# Preparación para una operación segura

## Familiarícese con la zona de trabajo

Antes de hacer funcionar la cortadora de césped, inspeccione cuidadosamente la zona de trabajo. Recorra a pie alrededor de la zona e inspeccione las superficies sobre las cuales se desplazará cuando utilice la cortadora.



Recorra a pie  
alrededor del lugar  
de trabajo

Localice y evite:

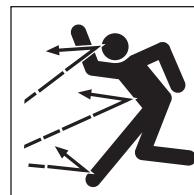
- Agujeros
- Desmoronamientos
- Obstáculos (tocos)
- Excavaciones
- Agua estancada
- Lodo profundo
- Puntos mojados
- Suelo blando
- Puntos irregulares
- Líneas y aparatos eléctricos
- Otros servicios públicos
- Cualquier condición que podría causar una colisión, pérdida de control o vuelco
- Pendientes empinadas

Busque residuos y obstáculos recorriendo a pie la zona antes de cortar. Los objetos como alambre, cable, rocas, neumáticos y metales que podrían dañar o ser arrojados por la cortadora de césped deben retirarse o marcarse claramente y evitarse.

Corrija las condiciones no seguras. No opere en áreas con problemas donde no se puedan retirar o marcar los residuos y los obstáculos.

Analice la zona de corte para determinar:

- El procedimiento de corte más eficiente.
- La altura del material que debe cortarse.
- Las condiciones operativas del terreno.
- Cómo usar mejor el patrón de corte en sentido de avance.
- Las posibilidades de que personas ajenas o que pasan circunstancialmente queden expuestas a objetos que se arrojan.



Retire o marque  
los residuos y  
obstáculos

## Tenga cuidado con otras personas

Antes de poner en marcha los equipos:

- Recorra a pie alrededor de los equipos.
- Verifique en busca de personas debajo o cerca de los equipos.
- Retire a todas las personas de esas zonas.
- Haga sonar una advertencia.

# Preparación para una operación segura

## Ascienda y descienda del tractor correctamente

Siempre use contacto de tres puntos al ascender o descender del tractor o de la cortadora de césped. Enfrente la máquina al ingresar o salir de ella. Un contacto de tres puntos significa que tres de los cuatro miembros (brazos y piernas) están en contacto con la máquina en todo momento durante el ascenso y descenso.

Antes de ascender:

- Límpiese el calzado y las manos. Limpie la nieve, el hielo, el lodo o el aceite de los peldaños y asideros.

Durante el ascenso y el descenso:

- Use los asideros y los estribos.
- Nunca se aferre al volante o a los controles como asideros.
- Nunca ascienda o descienda de un tractor en movimiento.
- Nunca ascienda o descienda transportando herramientas u objetos que impidan el contacto de tres puntos. Deje en el piso las piezas o las herramientas. Manteniendo el contacto correcto, suba y, después, recoja el objeto.



Utilice contacto  
de tres puntos



Limpie las  
superficies  
resbaladizas

# Preparación para una operación segura

## Prueba de seguridad de los controles del tractor y de la cortadora de césped

Arranque el tractor siguiendo los procedimientos específicos del manual del operador del fabricante. Estos procedimientos normalmente incluyen:

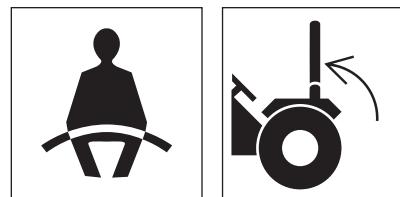
- Colóquese y ajústese el cinturón de seguridad en el tractor equipado con ROPS.
- Verifique que el freno de estacionamiento esté aplicado.
- Verifique que la TDF esté desenganchada.
- Verifique que todos los controles estén en la posición de estacionamiento.
- Advierta a otras personas en la zona antes de arrancar el tractor.
- Arranque el tractor siguiendo los procedimientos de arranque que recomienda el fabricante del tractor.

**¡ADVERTENCIA!** Evite lesiones graves o muertes producidas por el movimiento inesperado de la máquina.

**Arranque el motor únicamente desde el puesto del operador. Nunca intente arrancar el motor haciendo un corto entre los bornes del arranque o tomando la llave desde el suelo o desde afuera de la cabina.**

Después del arranque:

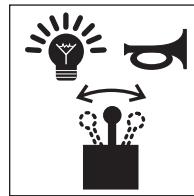
- Verifique que todos los instrumentos, indicadores y luces indicadoras funcionen normalmente.
- Verifique que todos los controles, la dirección y los frenos del tractor funcionen correctamente.



Use el ROPS y el cinturón de seguridad



Arranque únicamente desde el asiento del operador



Revise los instrumentos y controles

- Eleve y descienda la cortadora de césped en busca de problemas en el descenso total o el enganche de la línea motriz.
- Verifique los equipos en busca de vibraciones excesivas y ruidos anormales.

# Preparación para una operación segura

- Use las prácticas correctas de apagado de los equipos antes de inspeccionar equipos. Espere hasta que todo movimiento de los equipos se haya detenido antes de descender del tractor o la cortadora de césped.
- No haga funcionar la cortadora si el tractor y la cortadora de césped no funcionan correctamente. Coloque una etiqueta que indique "No poner en funcionamiento" en la máquina, retire la llave y no haga funcionar la cortadora hasta que el problema se haya corregido.

## Sistema de toma de fuerza (TDF)

Asegúrese de hacer funcionar el tractor a la velocidad de TDF indicada para la cortadora.

Al hacer funcionar tractores con sistemas de TDF impulsados por transmisión, una cortadora giratoria tiene un significativo efecto de rueda volante. La cortadora puede seguir propulsando un tractor con un sistema de TDF impulsado por transmisión.

El tractor debe estar equipado y funcionar como sigue:

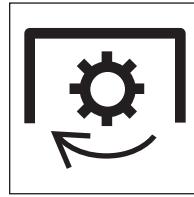
- Instale una línea motriz equipada con un embrague de sobrecarga.
- Prevea suficiente espacio y tiempo para maniobrar anticipando los giros, las paradas y las reducciones de velocidad.



No descienda hasta que el movimiento de los equipos se haya detenido



Use una etiqueta que indique "No poner en funcionamiento"



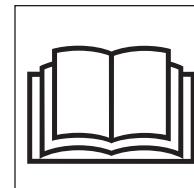
Use la velocidad de la TDF

# Preparación para una operación segura

## Enganche de la cortadora de césped al tractor

### Cortadoras montadas en enganche de tres puntos:

- Consulte los manuales de los fabricantes de la cortadora y del tractor.
- Coloque la palanca selectora de elevación de potencia hidráulica del tractor en la posición descendida para evitar movimientos imprevistos.
- Explique los procedimientos de enganche a los operadores que no puedan leerlos.
- Pueden requerirse pesos en el extremo delantero para mantener el control de la dirección y la estabilidad del extremo delantero. Consulte los manuales del operador de los fabricantes.
- Al hacer retroceder el tractor hasta la cortadora de césped, NUNCA permita que haya personas entre tractor y la cortadora.
- Instale la cortadora en los eslabones de tres puntos del tractor y asegúrela en su lugar con pasadores.
- Instale con seguridad la línea motriz a la TDF del tractor. Descienda el escudo principal hasta su lugar si es móvil. Empuje y tire de la línea motriz para asegurarse de que esté trabada en el vástago de la TDF.



Lea y asegúrese de comprender los manuales antes de comenzar la operación



Mantenga una distribución correcta del peso



No permita que haya nadie entre el tractor y la cortadora de césped

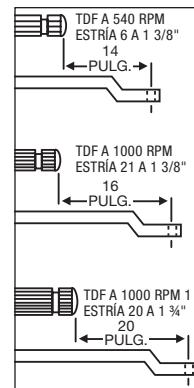


Evite quedar enredado, use guardas y escudos

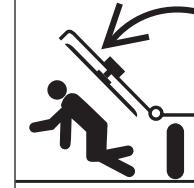
# Preparación para una operación segura

## Cortadoras montadas en enganche tipo de tiro:

- Consulte los manuales de los fabricantes de la cortadora y del tractor.
- Retire el acople rápido del enganche de tres puntos si está instalado.
- Instálelo únicamente al enganche de la barra de tiro.
- Ajuste la longitud de la barra de tiro del tractor para el funcionamiento de la TDF a 540 ó 1000 rpm.
- Al hacer retroceder el tractor hasta la cortadora de césped, NUNCA permita que haya personas entre tractor y la cortadora.
- Instale correctamente la cadena de remolque de seguridad de la cortadora en el tractor.
- Instale con seguridad la línea motriz a la TDF del tractor. Empuje y tire de la línea motriz para asegurarse de que esté trabada en la TDF. Descienda el escudo principal a su lugar.
- Conecte las mangueras hidráulicas de la cortadora de césped en el tractor.
- Asegúrese de que los laterales o las plataformas elevadas de la cortadora estén sostenidas por los cilindros antes de retirar las trabas de transporte. Nunca haga fuerza para soltar las trabas de transporte o de los laterales. Los laterales o la plataforma podrían caerse y aplastarlo.



Ajuste de la barra de tiro del tractor



Confirme que los laterales estén apoyados antes de soltar las trabas



Evite quedar enredado, use guardas y escudos

# Arranque con seguridad

## Cómo realizar un arranque correcto

Corte la hierba únicamente con luz diurna o en condiciones de buena luz artificial.

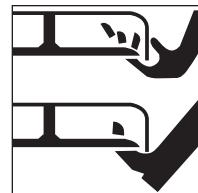
Evite lesiones graves o muerte producidas por objetos arrojados por la cortadora o por el contacto con las hojas:

- Mantenga los escudos de las cadenas, los escudos deflectores flexibles o sólidos y las rampas de descarga en su lugar y en buen estado de reparación.
- Mantenga a las personas ajenas a 300 pies (92 m) de la operación de corte.
- Nunca dirija la descarga de la cortadora hacia una persona.
- Mantenga las manos, los pies y otras partes del cuerpo alejadas de las piezas giratorias, las hojas y las aberturas de descarga.
- No haga funcionar la cortadora de césped en la posición de transporte.

No se acerque a una cortadora hasta que todo movimiento se haya detenido.

Enganche de la transmisión de RDF de la cortadora de césped:

- Eleve la cortadora hasta la altura de corte máxima.
- Enganche la TDF a baja velocidad del motor.
- Aumente la velocidad del motor hasta llegar a la velocidad nominal de la TDF.
- Descienda la cortadora hasta la altura de corte deseada.
- Detenga y apague de inmediato si la cortadora golpea contra una obstrucción.
- Inspeccione y repare cualquier daño de la cortadora antes de reanudar el corte.
- No haga funcionar una cortadora que vibra en exceso o produce ruidos anormales.



Hojas giratorias –  
Manténgase



No ponga en  
funcionamiento una  
cortadora de césped  
dañada

## Objetos arrojados por la cortadora de césped

Dependiendo del propósito previsto, las cortadoras están diseñadas para cortar hierba, maleza, broza y cultivos. Las hojas de la cortadora están diseñadas y probadas para uso intensivo. Las hojas de la cortadora, sin embargo, no están diseñadas para entrar en contacto con objetos sólidos como rocas, cemento o metales. Un impacto de este tipo puede arrojar objetos rotos hasta 300 pies (92 m) de distancia. Nunca debe haber personas ajenas a menos de 300 pies (92 m) de una cortadora giratoria en funcionamiento o a menos de 100 pies (30 m) de una cortadora de disco correctamente equipada.

# Operación con seguridad

Los escudos de la cortadora están diseñados para reducir el riesgo de objetos arrojados y se deben mantener correctamente y en su lugar durante las operaciones de corte.

El riesgo de lesiones graves o muerte puede reducirse significativamente si se siguen estas reglas. **Si no se siguen todas estas reglas de seguridad, la operación de corte debe detenerse en caso de que alguna persona ingrese dentro del límite de seguridad correspondiente a cada tipo de cortadora.**

**Primero** — Inspeccione la zona antes de cortar y retire las piedras, ramas, alambres, cables, metales, vidrios y otros objetos sólidos antes de hacer funcionar la máquina. Los objetos que no puedan retirarse deben marcarse con claridad y ser evitados con cuidado por el operador.

En áreas sin cultivos con hierba y maleza de altura suficiente como para ocultar objetos que podrían ser golpeados por las hojas, inspeccione la zona y retire o marque los residuos u obstáculos grandes.



Siga todas  
las reglas de  
seguridad

Realice el corte de la zona a una altura intermedia. Inspeccione la zona atentamente y retire o marque cualquier residuo u obstáculo restante. Corte nuevamente a la altura final deseada.

**Segundo** — Los escudos para objetos arrojados por la cortadora deben usarse cuando se opera cerca de caminos, parques, zonas pobladas u otras zonas donde objetos arrojados podrían lesionar a personas ajenas o dañar la propiedad. Siga el manual del operador del fabricante.

**Tercero** — Cruce en sentido diagonal cuando realiza el corte a través de zanjas, depresiones marcadas y hundimientos. Eleve la cortadora para evitar que las hojas de la cortadora golpeen el suelo.

# Operación con seguridad

## Objetos arrojados por la cortadora de césped (continuación)

**Cortadoras de disco** — Cuando se usa una cortadora de disco, es importante conocer la zona donde se va a cortar. Si el operador ha realizado cortes en el terreno antes y está familiarizado con todos los obstáculos que puede haber, es suficiente observar delante de la trayectoria de la cortadora para detectar cualquier objeto adicional que pueda haber ingresado en el terreno. Esté preparado para detenerse o evitar objetos que podrían ser peligrosos si son arrojados por la cortadora. Si piensa cortar en un terreno que no conoce bien y se encuentra junto a un camino transitado o puede haber personas a menos de 100 pies (30 m) de la cortadora de césped, debe inspeccionar y limpiar o marcar el terreno.

## Cómo cortar en retroceso

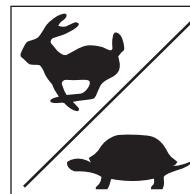
No corte mientras se desplaza en retroceso. Es más probable que se arrojen objetos y que éstos puedan llegar más lejos.



No corte en retroceso

Apague la TDF, espere que las hojas dejen de girar, eleve la cortadora y, después, retroceda.

Corte desplazándose en sentido de avance.



Use la velocidad de desplazamiento correcta

## Velocidad de desplazamiento durante el corte

La velocidad de desplazamiento correcta depende de las condiciones del terreno y del tipo de hierba, la densidad y la altura que debe cortarse:

- El rango normal de velocidad de desplazamiento es de 2 a 5 mph (3.2 a 8 km/h).
- Use una velocidad de desplazamiento menor para cortar hierbas altas y densas.
- Use una velocidad de desplazamiento mayor para cortar hierba delgada a altura media y con condiciones de terreno sin dificultades.
- Use una velocidad de desplazamiento menor para acortar en terreno irregular, con pendientes o no muy conocido.

Las cortadoras de disco están diseñadas para usar velocidades de desplazamiento mayores cuando funcionan en terrenos despejados de residuos y peligros superficiales.

# Operación con seguridad

## Corte de hierba extremadamente alta

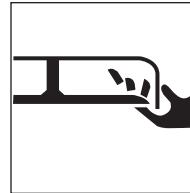
Puede ser necesario cortar dos veces la hierba extremadamente alta que no sea cultivo. (Consulte la página 13, **Objetos arrojados por la cortadora de césped.**)

Primera pasada de corte:

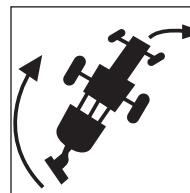
- Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)
- Inspeccione la zona y retire o marque cualquier residuo u obstáculo.
- Corte la hierba a mayor altura (10 a 15 pulg. [25 a 38 cm]) para evitar los objetos ocultos.

Segunda pasada de corte:

- Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor.
- Inspeccione la zona y retire o marque cualquier residuo u obstáculo.
- Corte la hierba a la altura deseada y, de ser posible, a 90 grados con respecto a la primera pasada de corte.



Detenga la hoja antes de desatascar



Proporcione el espacio libre adecuado para la oscilación de la cortadora de césped

## Preste atención a los espacios libres de los equipos

Las cortadoras con enganche de tres puntos y montaje lateral tienen un arco de giro mayor que las tipo de tiro. Deje el espacio libre suficiente para la oscilación de la cortadora cuando gira.

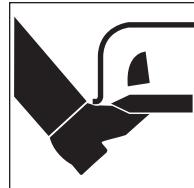
No permita que haya personas ajenas cerca del tractor y la cortadora de césped cuando mueve o transporta el tractor y la cortadora.

# Operación con seguridad

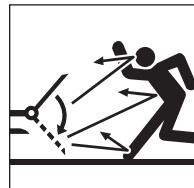
## Prácticas de seguridad para la cortadora de césped de montaje inferior

Cuando se traslada con una cortadora de césped de montaje inferior:

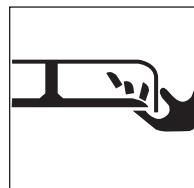
- Mantenga la rampa de descarga extraíble en su lugar y por encima de la abertura de descarga.
- Nunca se pare sobre la carcasa de una cortadora de césped cuando el motor del tractor está en funcionamiento.
- Distribuya los recortes de hierba con la rampa de descarga orientada hacia la zona donde se cortó.
- Antes de limpiar una cortadora o una rampa de descarga atascada, apague la máquina usando la práctica correcta para apagado del equipo. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)



Nunca se pare sobre la cortadora de césped – Manténgase alejado



Mantenga la rampa en su lugar



Detenga la hoja antes de desatascar

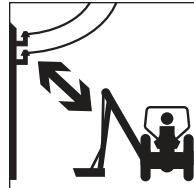
# Operación con seguridad

## Cortadora de césped con lateral o aguilón Peligros y riesgos de obstrucciones elevadas

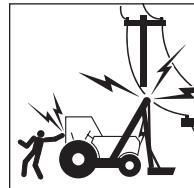
Verifique en busca de obstrucciones elevadas con las cortadoras que tienen el lateral o el aguilón elevado, para evitar lesiones graves o la muerte por contacto con:

- Líneas y aparatos eléctricos.
- Ramas bajas de los árboles.
- Otras obstrucciones elevadas.
- Mantenga las distancias especificadas con respecto a los cables y los aparatos eléctricos. Nunca se acerque a cables o aparatos eléctricos energizados con ninguna parte de la máquina, salvo que se hayan tomado todas las precauciones de seguridad locales, estatales/provinciales y federales (OSHA) necesarias. Use extrema precaución.

**¡PELIGRO!** Evite la electrocución o lesiones graves por contacto o un espacio libre inadecuado con respecto a líneas o aparatos eléctricos energizados. **No permita que la máquina o el accesorio se acerque o entre en contacto con una línea de electricidad. No se acerque ni toque una máquina que esté en contacto con una línea de electricidad.**



No se acerque a líneas de electricidad energizadas



Manténgase alejado de los equipos energizados

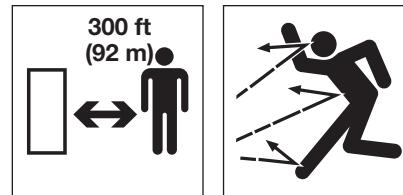
# Operación con seguridad

## Prácticas de seguridad para cortadoras de césped con laterales y montaje lateral

Las posiciones elevadas de los laterales reducen la protección de los escudos y aumentan los riesgos de objetos arrojados y contacto con las hojas.

### Evite la posibilidad de lesiones graves o muerte por objetos arrojados o contacto con las hojas causados por la elevación y el descenso de los laterales durante las operaciones de corte:

- No realice cortes con personas ajenas presentes a menos de 300 pies (92 m) de la cortadora de césped.
- Asegúrese de que no haya personas cerca de la cortadora mientras se elevan o descienden los laterales.
- Apague la TDF y espere hasta que todos los elementos giratorios se hayan detenido antes de elevar la plataforma o la sección lateral de la cortadora.
- Únicamente eleve el lateral para quitar objetos de la trayectoria de corte o para acompañar una pendiente del terreno.
- Descienda hasta el suelo el lateral elevado una vez que se eliminó el objeto o se superó la pendiente.
- Detenga el trabajo de corte si alguna persona se acerca a menos de 300 pies (92 m) de la zona de corte.



Mantenga a las personas ajenas alejadas de la zona de corte



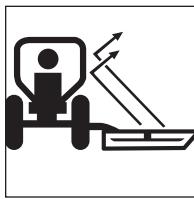
Evite golpear obstrucciones

## Prácticas de seguridad para trabajos de corte en orillas de zanjas

Use extremo cuidado al realizar cortes en orillas de zanjas. Preste atención a escurrimientos, zonas erosionadas y obstrucciones para el corte a lo largo de las orillas de zanjas. Si se golpean obstrucciones con cortadoras de montaje lateral o con aguilón, el extremo delantero del tractor puede desviarse hacia la zanja.

# Operación con seguridad

Los trabajos en orillas de zanjas con aguilón y lateral elevado pueden reducir la eficacia de la protección del operador de la cortadora que proporcionan los escudos para objetos arrojados.



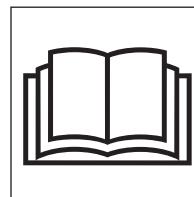
Utilice cabinas cerradas con ROPS o cerramientos de protección

- Cuando realice estas operaciones, use cabinas cerradas con ROPS, cerramientos protectores especiales y otros escudos para el operador que ofrece el fabricante.
- Inspeccione la zona de corte y retire o marque todos los objetos extraños y los residuos que deberá esquivar la cortadora.

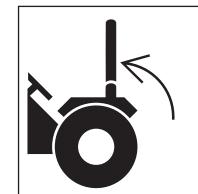
de que el ROPS está elevado y trabado en su lugar y use siempre el cinturón de seguridad.

Prevenga los vuelcos del tractor y de la cortadora de césped y mantenga controlada la estabilidad de los equipos:

- Repase los manuales del operador del tractor y de la cortadora para ver las prácticas de seguridad para operaciones en pendientes y terrenos desparejos. Explique las prácticas a los operadores que no puedan leerlas.
- Evite trabajar en pendientes extremadamente empinadas.



Lea y asegúrese de comprender los manuales antes de comenzar la operación



Use el ROPS y el cinturón de seguridad

## Prácticas de seguridad para trabajos de corte en terrenos desparejos

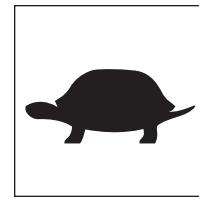
Las pendientes y los terrenos desparejos reducen la estabilidad del tractor y de la cortadora.

Como en todas las condiciones de corte, use tractores equipados con ROPS y cinturón de seguridad. **Asegúrese**

# Operación con seguridad

## Prácticas de seguridad para trabajos de corte en terrenos desparejos (continuación)

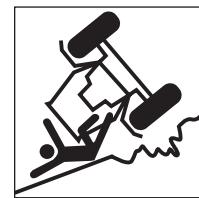
- Use extremo cuidado para mantener el control de los equipos cuando trabaja en estas condiciones.
- Aumente la estabilidad del tractor agregando pesos o lastre en las ruedas y aumentando al máximo la separación entre las ruedas. Consulte las recomendaciones en el manual del operador.
- Mantenga la velocidad de desplazamiento en el mínimo.
- Realice giros amplios y graduales.
- Evite los arranques, las paradas y los giros bruscos cuando trabaje en subidas o bajadas de pendientes o sobre ellas.
- **No** levante del suelo las cortadoras de montaje trasero o de montaje lateral ni los laterales de la cortadora durante estas operaciones.
- Manténganse alerta en busca de agujeros, baches, pozos, tocones u otras obstrucciones que podrían hacer volcar la máquina.
- Evite las condiciones de suelo resbaladizo que podrían causar la pérdida de control y el vuelco del tractor y la cortadora.
- Evite bajar completamente y golpear el suelo cuando cruza en sentido diagonal depresiones marcadas y hundimientos.



Mantenga el control, desplácese



Agregue lastre, ensanche la separación entre las ruedas



Evite los pozos, baches y agujeros

Use extremo cuidado al mantener la estabilidad de los equipos durante todos los trabajos de corte en terrenos desparejos y pendientes. Usted es quien juzga en última instancia si en cualquier pendiente se puede trabajar con seguridad.

# Operación con seguridad

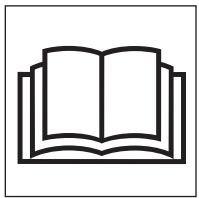
## Prácticas de seguridad para el transporte en caminos

Antes de operar en la vía pública:

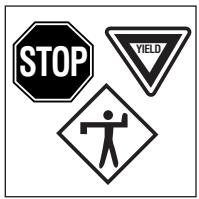
- Consulte los manuales del operador de los fabricantes de la cortadora y del tractor para ver instrucciones.
- Explique las instrucciones a los usuarios u operadores que no puedan leerlas.
- Verifique las ordenanzas locales sobre marcas, luces, balizas, etc. requeridas en los equipos durante el desplazamiento por la vía pública. Se requieren luces en las cortadoras que obstaculizan la visibilidad de las luces traseras y/o las luces de advertencia del tractor.
- Cuando transporte la cortadora de césped en un remolque, siga las instrucciones detalladas del fabricante para la carga, el amarre y la descarga de la cortadora.

Antes de transportar en la vía pública:

- Desconecte la alimentación de la TDF a la cortadora.
- Eleve la cortadora a la posición de transporte y aplique la traba para transporte.
- Trabe los laterales de la cortadora de césped en la posición de transporte con dispositivos de bloqueo aprobados.
- Instale una cadena de seguridad para remolque entre la cortadora tipo de tiro y el tractor.
- Asegúrese de que las luces, las luces de advertencia y los reflectores están en su lugar y son visibles.



Lea y asegúrese de comprender los manuales antes de comenzar la operación



Obbedezca las ordenanzas de tránsito

# Estacionamiento seguro

## Prácticas de seguridad para el estacionamiento

- Use las zonas designadas o alejadas del tránsito.
- Use lugares con suelo firme y nivelado.
- Aplique el freno de estacionamiento.
- Descienda el equipo de la cortadora de césped hasta el suelo.

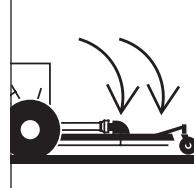
Apague la cortadora y el tractor usando la práctica correcta de apagado de equipos antes de descender del tractor. (Consulte la página 18, **Prácticas correctas de apagado de los equipos.**)

Lugares de estacionamiento con suelo en pendiente:

- Ubique los equipos transversalmente con respecto a la pendiente.
- Aplique los frenos de estacionamiento.
- Descienda el equipo de la cortadora de césped hasta el suelo.
- Bloquee las ruedas del tractor.



Aplique el freno de estacionamiento



Descienda los equipos elevados hasta el suelo

Antes de estacionar temporalmente y dejar equipos deshabilitados cerca de zonas con tránsito:

- Retire los equipos de la vía pública.
- Instale banderas de advertencia.
- Use las balizas de advertencia del tractor.

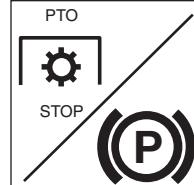
# Apagado con seguridad

## Prácticas correctas de apagado de los equipos

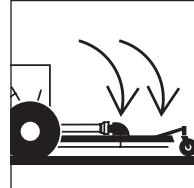
Transforme el apagado correcto de los equipos en un hábito.

El apagado correcto de un tractor y una cortadora de césped puede ayudar a evitar accidentes cuando la cortadora está sin vigilancia. Apague la cortadora siguiendo los procedimientos específicos del manual del operador del fabricante. Estos procedimientos normalmente incluirán:

- Reduzca la velocidad del motor.
- Desenganche el embrague de la TDF y la transmisión.
- Haga funcionar el motor en ralentí para que se enfríe gradualmente.
- Coloque todos los controles en la posición de estacionamiento.
- Aplique el freno de estacionamiento.
- Descienda la cortadora de césped hasta el suelo.
- Descienda los laterales de las cortadoras con laterales hasta el suelo.
- Apague el motor, trabe la ignición y retire la llave de la máquina; llévela con usted.
- Espere hasta que todas las piezas móviles se hayan detenido antes de descender.
- Libere la presión hidráulica moviendo los controles hidráulicos varias veces en todas las direcciones.
- Trabe las cubiertas y los cerramientos antivandalismo, si están instalados, cuando los equipos están sin vigilancia.
- Descienda con cuidado manteniendo contacto de tres puntos.



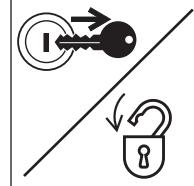
Desenganche la TDF, aplique el freno



Descienda los equipos elevados hasta el suelo



Espere hasta que las piezas giratorias se detengan



Retire la llave, trabe la ignición, llévese la llave

# Apagado con seguridad

## Descenso correcto

- Nunca descienda de equipos en movimiento.
- Nunca baje de una máquina saltando.
- Descienda con cuidado.
- Verifique que no haya peldaños resbaladizos.
- Mantenga los pies y las manos lejos de los controles.
- Use los asideros y los peldaños durante el descenso.
- Enfrente la máquina y use contacto de tres puntos (2 manos y 1 pie o 2 pies y 1 mano).



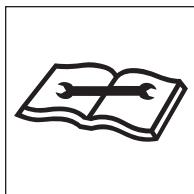
Espere hasta que las piezas móviles se detengan



Use contacto de tres puntos; enfrente a la máquina

# Realización de mantenimiento con seguridad

## Mantenimiento de los equipos



Realice el mantenimiento de los equipos

**¡ADVERTENCIA!** No modifique equipos ni agregue componentes no aprobados por el fabricante. Use piezas, lubricantes y técnicas de servicio recomendadas por el fabricante.

## Piezas de la cortadora de césped y seguridad personal

Los fabricantes de cortadoras de césped usan sujetadores y específicos y piezas especialmente diseñadas para cumplir con los requisitos de las operaciones de las cortadoras. Las piezas críticas (pernos autobloqueantes de las hojas, hojas, pasadores, escudos y otros componentes especiales) tienen requisitos específicos de resistencia, diseño y ajuste para la marca y el modelo de cortadora que usted está usando.

Evite posibles lesiones graves o la muerte por el uso de piezas o modificaciones no aprobadas:

- No sustituya con tornillería común los pernos de las hojas u otros componentes de piezas especiales originales del fabricante.
- No sustituya hojas, pasadores, escudos u otras piezas críticas.
- No use pernos de mayor resistencia para reemplazar los pernos de seguridad originales del fabricante.

Asegúrese de mantener los equipos de acuerdo con las instrucciones del fabricante. Verifique con regularidad el funcionamiento de los dispositivos de protección y de seguridad.

**No** realice ningún trabajo en un tractor o en una cortadora de césped si no está autorizado y cualificado para hacerlo.

Si ha sido autorizado para realizar mantenimiento, **lea los manuales del operador y de servicios**. Estudie las instrucciones; verifique las tablas de lubricación; examine todos los mensajes de instrucciones que haya sobre la máquina. El mantenimiento puede ser peligroso si no se realiza correctamente. Asegúrese de tener las habilidades necesarias, la información y las herramientas y equipos correctos para realizar el trabajo.

# Realización de mantenimiento con seguridad

## Preparación personal

Use la ropa de protección personal y los equipos de protección personal (PPE) que se le proporcionen o que requieran las condiciones del trabajo. **SIEMPRE** debe usar gafas de seguridad con escudos laterales.

Puede necesitar también:

- Casco
- Calzado de seguridad
- Anteojos de seguridad, antiparras o protección facial
- Delantal y guantes
- Protección para oídos
- Casco o antiparras para soldar
- Respirador o máscara con filtro

Use la ropa necesaria; no corra ningún riesgo.

**Mantenga las manos (y la ropa) alejadas de todas las piezas móviles.** No use cordones sueltos, mangas flojas, anillos, relojes o cabello largo.

**¡ADVERTENCIA!** Evite lesiones graves o muerte por enredos. **No use ropa floja ni accesorios. Manténgase alejado de todos los componentes giratorios cuando el motor está en funcionamiento.** El contacto, el enrollado o el enredo con piezas giratorias o móviles podrían resultar en lesiones graves o la muerte.



Evite las piezas giratorias



Evite puntos donde pueda quedar atrapado

# Realización de mantenimiento con seguridad

Use un delantal de caucho y guantes de caucho cuando trabaja con sustancias corrosivas. Use guantes y calzado de seguridad cuando manipula bloques de madera o metales con bordes agudos.

Use siempre anteojos de seguridad, antiparras o protección facial. Proporcionan protección ocular para fluidos bajo presión, mientras se esmerila y se realizan servicios a las baterías. También es necesaria protección contra residuos, líquidos y material suelto producido por el equipo, las herramientas y el aire/agua presurizada.

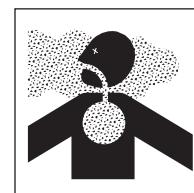
Use protección facial y siga las instrucciones del fabricante cuando desarma componentes cargados a resorte o cuando trabaja con ácidos de batería. Use un casco o antiparras para soldar con filtro esfumado cuando suelda o corta con soplete.

No arene, esmerile, corte con soplete o suelde sin un respirador aprobado por NIOSH o una ventilación adecuada. Si se requiere soldar en esta máquina, consulte los manuales del operador o de servicios del fabricante o consulte al concesionario de los equipos para obtener los procedimientos correctos.

Mantenga los bolsillos sin objetos que podrían salirse y caer dentro de la maquinaria.



Limpie las superficies resbaladizas



Ventile la zona de trabajo

Maneje las herramientas y las piezas pesadas con sensatez con respecto a usted mismo y a otras personas. Deposite los elementos, no los deje caer.

## Preparación de la zona de trabajo

- Ubique la cortadora de césped en una zona nivelada fuera del paso de otros equipos en funcionamiento.
- Asegúrese de que haya luz, ventilación y espacio libre adecuados.
- Quite el aceite, la grasa o el agua para eliminar toda superficie resbaladiza.
- Limpie alrededor de la zona donde se realizarán servicios para minimizar la contaminación.

# Realización de mantenimiento con seguridad

## Preparación de la máquina

Deben controlarse o reducirse las fuentes de energía almacenada (eléctricas, mecánicas, hidráulicas, neumáticas, químicas, térmicas, etc.) al mínimo practicable antes de realizar cualquier procedimiento de mantenimiento, reparación o servicio.

### Prácticas de seguridad para prevenir posibles lesiones por fuentes que liberan energía:

- Desenganche la TDF antes de apagar el motor.
- Coloque los controles en la posición de estacionamiento o punto muerto antes de apagar el motor.
- Aplique el freno de estacionamiento o bloquee las ruedas.
- Espere hasta que todas las piezas móviles se detengan.
- Descienda la cortadora de césped hasta el suelo.
- Descienda los laterales de las cortadoras con laterales hasta el suelo.
- Apague el motor del tractor.
- Libere la presión del sistema hidráulico moviendo los controles varias veces en todas las direcciones.
- Trabe la ignición, retire la llave y llévesela.



Prepare los sistemas de la máquina para realizarles servicios

- Escuche y observe en busca de evidencias que indiquen piezas en movimiento antes de descender.
- Apoye o bloquee con seguridad la cortadora de césped antes de trabajar debajo de ella o de otros componentes elevados.
- Apoye, bloquee o trabe con seguridad los laterales de la cortadora con dispositivos de traba aprobados antes de trabajar cerca o debajo de una cortadora con laterales.
- Alivie la presión antes de desconectar o desarmar un sistema presurizado.
- Bloquee o alivie la presión de los resortes antes de desarmar un mecanismo cargado a resorte.
- Apoye o bloquee con seguridad cualquier componente elevado de la máquina antes de trabajar en él.
- Evite las llamas, las chispas y no fume cerca de combustibles, fluido hidráulico u otro material inflamable como los residuos de los cortes.

# Realización de mantenimiento con seguridad

Fije una etiqueta con la advertencia “NO PONER EN FUNCIONAMIENTO” en todas las palancas de control y retire la llave de contacto si la cortadora de césped no debe ser utilizada. Llévese la llave.

Instale dispositivos de apoyo aprobados cuando trabaja debajo o cerca de equipos elevados.

**¡ADVERTENCIA!** Las cortadoras de césped u otros equipos elevados no apoyados pueden caerse de manera imprevista. **Nunca se introduzca debajo de equipos elevados si no están apoyados en dispositivos de apoyo aprobados.** La caída de equipos podría resultar en una lesión grave o la muerte por aplastamiento.

Retire sólo las guardas o cubiertas que permiten acceder a la zona donde se realizarán servicios. Vuelva a colocar todas las guardas y cubiertas cuando el trabajo esté terminado.



Use una “etiqueta que indique No poner en funcionamiento”



Utilice dispositivos de apoyo aprobados



Vuelva a colocar todas las guardas

# Realización de mantenimiento con seguridad

## Use ventilación adecuada

Si es necesario hacer funcionar un motor en una zona cerrada, elimine del área las emanaciones de escape con una extensión del caño de escape. Si no tiene esa extensión, asegúrese de abrir las puertas y dejar entrar aire del exterior.

**¡ADVERTENCIA!** Evite posibles lesiones. **Nunca trabaje en la maquinaria con el motor en funcionamiento salvo que así lo indiquen los manuales del fabricante para un servicio en particular.**

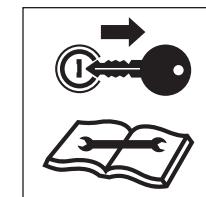
**¡ADVERTENCIA!** Nunca haga funcionar ningún tipo de motor sin la ventilación adecuada: LAS EMANACIONES DEL ESCAPE PUEDEN SER MORTALES.

## Use gatos y malacates con cuidado

Los soportes o bloques de seguridad deben ubicarse en una parte rígida de la cortadora. No ubique soportes debajo de ejes o apoyos de ruedas que puedan girar.

Si debe trabajar debajo de equipos elevados, siempre use bloques de madera (**no de concreto**), soportes de gato u otros soportes rígidos y estables. Cuando use gatos o malacates, siempre asegúrese de que están correctamente apoyados.

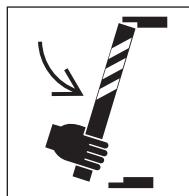
**¡ADVERTENCIA!** Evite posibles lesiones por aplastamiento. **Nunca use bloques de concreto para apoyo.** Pueden colapsar bajo cargas incluso livianas.



Retire la llave y  
lea el manual de  
mantenimiento



Ventile la zona  
de trabajo



Use un apoyo  
adecuado para los  
equipos elevados

Asegúrese de que los malacates o gatos que usa estén en buenas condiciones. Nunca use gatos con piezas rajadas, dobladas o retorcidas. Nunca use cables pelados, retorcidos o pellizcados. Nunca use ganchos doblados o deformados.

# Realización de mantenimiento con seguridad

## Prácticas de seguridad para tareas de mantenimiento comunes

### Riesgos del combustible

**¡ADVERTENCIA!** Siempre use recipientes y/o equipos de distribución de combustible aprobados.

Los combustibles son inflamables; por eso, debe cumplir estas prácticas con el fin de reducir la posibilidad de un accidente grave.

- Apague el motor y la ignición mientras carga combustible.
- Siempre conecte a tierra la boquilla de combustible contra el cuello de llenado del depósito para evitar chispas.
- Mantenga las chispas y llamas abiertas alejadas del combustible.
- No fume mientras carga combustible o manipula recipientes con combustible.
- No corte ni suelde en líneas, tanques o recipientes de combustible ni cerca de ellos.
- No llene el depósito en exceso o derrame combustible. Limpie el combustible derramado de inmediato.



No fumar;  
evitar las llamas  
abiertas



Retire la tapa  
del radiador  
lentamente

# Realización de mantenimiento con seguridad

## Riesgos del sistema hidráulico

El sistema hidráulico se encuentra bajo presión siempre que el motor está funcionando; puede conservar presión incluso después de apagar el motor. Haga funcionar todos los controles hidráulicos incluyendo el control hidráulico auxiliar después de que el motor esté apagado. Alivie la presión atrapada en las líneas después de que los accesorios están apagados y apoyados en el suelo.

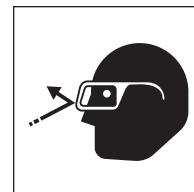
Durante la inspección del sistema hidráulico:

- Espere que el fluido se enfríe antes de desconectar las líneas. El fluido hidráulico caliente puede causar QUEMADURAS GRAVES.
- **No** use las manos para verificar la presencia de fugas. En cambio, use un cartón o papel para buscar fugas.
- Use protección ocular adecuada. El fluido hidráulico puede causar lesiones oculares permanentes.

**¡ADVERTENCIA!** El fluido hidráulico bajo presión pueden penetrar la piel o los ojos y causar lesiones graves, ceguera o la muerte. Las fugas de fluido bajo presión pueden no ser visibles. **Utilice un cartón o una madera para buscar fugas, no la mano. Use una protección facial o antiparras de seguridad para proteger los ojos.** Si el fluido se inyecta en la piel, debe ser extraído dentro de las próximas pocas horas por personal médico familiarizado con este tipo de lesión.

Cuando ventila o llena el sistema hidráulico, afloje la tapa de llenado con lentitud y retírela gradualmente.

**Nunca** restablezca una válvula de alivio del sistema hidráulico a una presión mayor que la recomendada por el fabricante.



Use protección ocular



El fluido a alta presión puede inyectarse en el cuerpo

# Realización de mantenimiento con seguridad

## Riesgos del sistema eléctrico

Antes de trabajar en el sistema eléctrico, desconecte los cables de la batería.

- Retire primero los cables negativos (-) de la batería.
- Al reconnectar la batería, conecte los cables negativos (-) de la batería al final.

El líquido del interior de las baterías contiene ácido, que es un VENENO y puede causar QUEMADURAS QUÍMICAS GRAVES.

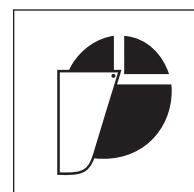
## Evite lesiones

- Use una protección facial para evitar el contacto con los ojos.
- Use guantes y ropa resistentes a los productos químicos para mantener al electrolito alejado de la piel y la ropa común.

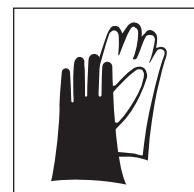
**¡ADVERTENCIA!** El contacto con el electrolito daña los ojos y la piel. **Siempre use una protección facial para evitar que el electrolito penetre en los ojos.** Si el electrolito entra en contacto con los ojos, enjuague de inmediato con agua limpia y busque atención médica.

**Use guantes de caucho y ropa de protección para mantener el electrolito lejos de la piel.** Si el electrolito entra en contacto con la piel o la ropa, lave de inmediato con agua limpia.

**Si se ingiere,** busque atención médica de inmediato. NUNCA proporcione líquidos que induzcan el vómito.



Use protección facial



Use indumentaria de protección

# Realización de mantenimiento con seguridad

## Evite explosiones

**¡ADVERTENCIA!** Evite posibles lesiones graves por explosiones. Las baterías de plomo-ácido producen gases sumamente explosivos, especialmente durante la carga. **Mantenga alejados los arcos, las chispas, las llamas y el tabaco encendido.**

- No fume cerca de las baterías.
- Mantenga los arcos, las chispas y llamas abiertas alejadas de las baterías.
- Proporcione ventilación adecuada.

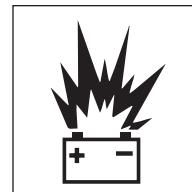
**Nunca** revise la batería colocando un objeto metálico entre los bornes: la chispa resultante podría causar una explosión.

**¡ADVERTENCIA!** Evite posibles lesiones graves por explosiones de baterías. **No cargue baterías ni arranque con refuerzo el motor si la batería está congelada.** Caliente a 60 °F (15,5 °C) o la batería puede explotar y causar lesiones graves.

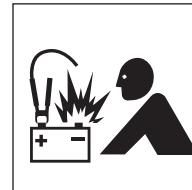
Reglas de seguridad durante el arranque con refuerzo de batería:

- Siga las instrucciones para el “arranque con refuerzo de batería” correcto como se especifica en el manual del fabricante.

- Asegúrese de que las máquinas no se estén tocando.
- Observe la polaridad de las baterías y conexiones.
- Realice la conexión final de cable al motor o al punto de tierra más alejado de la batería. Nunca realice la conexión final en el arrancador o la batería muerta: las chispas pueden encender gases explosivos presentes en la batería.
- Cuando desconecta cables después de un arranque con puente, retire los cables en el orden inverso al de la conexión (es decir, la conexión final primero).



Evite las chispas y las llamas abiertas cerca de las baterías



Para el arranque con refuerzo, observe la polaridad y realice la conexión final en el punto de descarga a tierra

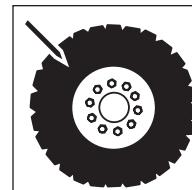
# Realización de mantenimiento con seguridad

## Mantenimiento de neumáticos y ruedas

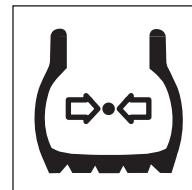
Revise los neumáticos y las ruedas a diario porque la estabilidad del tractor y la cortadora de césped puede verse significativamente afectada por la presión de los neumáticos o daños en los neumáticos o en las ruedas.

Revise los neumáticos para verificar:

- La presión correcta.
- Cortes y protuberancias.
- Clavos u otras pinchaduras.
- Desgaste desparejo o excesivo.
- Estado de los vástagos y tapas de las válvulas.



Revise los neumáticos y las ruedas en busca de daños



Mantenga la presión correcta en los neumáticos

Revise las ruedas para verificar:

- Daños en las llantas.
- Tuercas o pernos faltantes o flojos.
- Desalineación.

Todos los servicios de neumáticos deben ser realizados por un centro de servicios para neumáticos cualificado o por una persona de servicio autorizada debidamente capacitada en los procedimientos y el uso del equipo de seguridad destinado a los servicios de neumáticos.

# Realización de mantenimiento con seguridad

## Mantenimiento de neumáticos y ruedas (continuación)

**¡ADVERTENCIA!** Los tipos de ruedas y neumáticos que generalmente se encuentran en estos equipos requieren cuidados especiales al realizar servicios para evitar lesiones graves o la muerte.

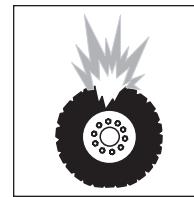
No inflé los neumáticos por encima de la presión recomendada. Asegúrese de volver a colocar el lastre de los neumáticos si está instalado. Consulte las especificaciones del fabricante para ver los requisitos de lastre.

Mantenga las tuercas de las ruedas apretadas según las recomendaciones del fabricante.

Es normal que la presión de los neumáticos aumente durante el funcionamiento; NO se debe reducir.

Nunca vuelva a inflar un neumático que se ha desinflado mucho o por completo sin retirar el neumático de la rueda. Haga inspección atentamente el neumático y la rueda para detectar daños antes de volverlos a armar.

Al agregar aire a un neumático, hágalo desde cierta distancia. Use una manguera larga con mandril de autofijación. Siempre párese detrás de la trocha cuando ajusta la presión de un neumático.



Evite la explosión de los neumáticos

No inflé neumáticos con gases inflamables o con sistemas que usan un inyector de alcohol.

Nunca corte o suelde una rueda con un neumático inflado instalado en ella. Esto podría causar descompresión explosiva.

Verifique que el tamaño del neumático y la rueda coincidan correctamente.

Cuando reemplaza neumáticos, asegúrese de que sean de la clasificación adecuada especificada por el fabricante.

Los neumáticos no deben funcionar a velocidades más altas que las nominales. La mayoría de los neumáticos para agricultura están clasificados para una velocidad máxima de 20 mph (32 km/h).

# Realización de mantenimiento con seguridad

## Servicio y reparaciones completas antes de liberar la máquina

Apriete todos los pernos, accesorios y conexiones con las torsiones especificadas por el fabricante.

Instale todas las guardas, cubiertas y escudos después de realizar los servicios. Reemplace o repare los que estén dañados. Llene y recargue los sistemas a presión sólo con los fluidos aprobados o recomendados por el fabricante.

Arranque el motor y revise para detectar fugas. (Consulte la página 23, **Riesgos del sistema hidráulico**.) Haga funcionar todos los controles para asegurarse de que el tractor y la cortadora de césped funcionan correctamente. Pruebe la máquina si es necesario. Después de las pruebas, apague y verifique el trabajo realizado. ¿Falta algún pasador, arandela, tuerca de seguridad, etc.? Vuelva a revisar todos los niveles de fluidos antes de liberar la máquina para el funcionamiento.

Todas las piezas deben ser inspeccionadas durante la reparación y deben reemplazarse si están gastadas, rajadas o dañadas. Las piezas excesivamente gastadas o dañadas pueden fallar y causar lesiones o la muerte.

Reemplace cualquier letrero dañado o ilegible.



Verifique el trabajo de servicio cuando está completo

## Mantenimiento de las hojas de la cortadora

No corra riesgos usando hojas dañadas o dobladas. Los fabricantes de cortadoras de césped de la Asociación de Fabricantes de Equipos (Association of Equipment Manufacturers, AEM) y la Asociación de Fabricantes de Equipos para Agricultura (Farm Equipment Manufacturers Association, Fema) piden que las hojas de cortadoras NO se reutilicen, enderezan, refuerzan en su superficie o suelden. Si una hoja rota es arrojada por una cortadora, podrían producirse lesiones graves o la muerte.

# Realización de mantenimiento con seguridad

## Mantenimiento de las hojas de la cortadora (continuación)

- **¿Cómo están hechas las hojas de la cortadora de césped?** Están hechas acero para resortes de aleación de alta resistencia. Se forjan en caliente y se les da forma para cumplir con las especificaciones individuales del fabricante; luego, se tratan y templan a un estado dúctil, de alta resistencia para reducir la posibilidad de rupturas durante el corte. Las hojas se prueban para garantizar que cumplan con las normas de resistencia, dureza y ductilidad. Si una hoja no cumple con alguna de estas especificaciones, no se utilizará en la cortadora de césped.
- **¿Qué sucede cuando se dobla una hoja de la cortadora?** Se necesita una gran fuerza de impacto para doblar la hoja. Esta fuerza de impacto a menudo resulta en que las hojas se agujerean o marcan. Una vez que una hoja está dañada por un agujero o una marca, es mucho más probable que ocurra una falla de la hoja. Cuando una hoja está gravemente doblada, puede crearse una rajadura microscópica en ella. Enderezar la hoja no quita o repara esta rajadura, sino que puede causar rajaduras adicionales. Tensiones adicionales durante los trabajos de corte pueden resultar en una falla imprevista de la hoja.

- **Evite doblar las hojas.** Contribuya a prevenir que las hojas de la cortadora se doblen o rajen evitando el contacto con objetos sólidos. Las hojas de la cortadora de césped están destinadas a cortar hierba, arbustos, vegetación leñosa y árboles y ramas pequeños. No están diseñadas para entrar en contacto con objetos sólidos como roca, cemento o postes de acero. Inspeccione la zona antes de usar la cortadora. Retire o marque claramente los objetos sólidos y corte alrededor de ellos.
- **Sustituya las hojas dañadas!** Inspeccione las hojas de la cortadora diariamente o después de golpear algún objeto sólido. Si una hoja de la cortadora de césped se daña (está doblada, agujereada, rajada) o desgasta más del 25 por ciento del tamaño original, debe retirarse y sustituirse con una nueva. Siempre use las hojas originales del fabricante. Las hojas de marcas no originales pueden no cumplir con los requisitos de resistencia, dureza y ductilidad del fabricante de la cortadora.
- **No corra riesgos usando hojas dañadas o dobladas.** El uso de una hoja de cortadora dañada o enderezada puede resultar en la ruptura de la hoja y que la hoja sea arrojada hacia el operador o una persona ajena causando una lesión grave o la muerte. El precio de una nueva hoja es bajo en comparación con la posibilidad de una lesión grave que podría resultar de una hoja doblada o rota arrojada por la cortadora

## Palabras finales para el usuario

Acaba de terminar de leer el Manual de la cortadora de césped industrial y para agricultura AEM. Es imposible que este manual abarque todas las situaciones de seguridad que se podría encontrar a diario. Su conocimiento de estas precauciones de seguridad y de su cumplimiento de las reglas básicas de seguridad

contribuirán a formar un buen juicio en todas las situaciones. Nuestro objetivo es ayudarlo a desarrollar, establecer y mantener buenos hábitos de seguridad para que la operación de una cortadora de césped industrial y para agricultura le resulte más fácil y más segura.

Éste es otro manual de una serie publicada por AEM sobre la operación de maquinaria en condiciones de seguridad. Muchas de las ilustraciones de este manual de seguridad se pueden encontrar y descargar en <http://pictorials.aem.org>.

Para obtener publicaciones adicionales, visite nuestro sitio web en [www.safetymaterials.org](http://www.safetymaterials.org).



ASOCIACIÓN DE FABRICANTES  
DE EQUIPOS

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[www.aem.org](http://www.aem.org)

## **2. INTRODUCTION SECTION**

Introduction Section 2-1

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## INTRODUCTION

The manual and the attached declaration of conformity shall be considered part of the machine until its disposal and have to be passed on to new operators or owners. If the manual is not supplied together with the machine or if it becomes lost it is recommended to order a copy from RHINO.

**Thoroughly read the use and maintenance manual** and follow the instructions noted on it before using, checking and operating the machine.

If for any reason you do not understand any part of this manual, including tables or drawings, contact RHINO and request assistance from the service department.

RHINO is at full disposal of users, sales staff and any other person in order to improve understanding of the whole manual.

In conformity with existing law instructions on hazardous situations are indicated as described in chapter 3.

***This Manual has been written in conformity with the rules current at the time of printing.***

***The Manual is part of the machine and has to be passed on to new operators or owners together with the Declaration of Conformity.***

***October 2010***

This Mower is designed with care and built with quality materials by skilled workers. Proper assembly, maintenance, and operating practices, as described in this manual, will help the owner/operator get years of satisfactory service from the machine.

The purpose of this manual is to familiarize, instruct, and train. The Safety Section is a MUST READ section prior to any use of the mower. The Assembly Section instructs the owner/operator in the correct assembly of the Mower using standard and optional equipment. Careful use and timely service saves extensive repairs and costly downtime losses. The Operation Section informs the owner/operator how to work the mower and explains proper procedures and safe practices prior to and during the operation of the mower. The Trouble-Shooting Guide helps diagnose difficulties with the mower and offers solutions to the problems. The Maintenance Section instructs the owner/operator of all the necessary inspection, lubrication, general maintenance needed to insure long life and trouble free operation of your mower. The Parts Listing section is designed to familiarize the owner/operator with replaceable parts on the Mower.

Safety is of primary importance to the owner/operator and to the manufacturer. The first section of this manual includes a list of Safety Messages, that, if followed, will help protect the operator and bystanders from injury or death. Many of the Safety Messages will be repeated throughout the manual. The owner/operator/dealer should know these Safety Messages before assembly and be aware of the hazards of operating this mower during assembly, use, and maintenance. The Safety Alert Symbol combined with a Signal Word, as seen below, is intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this machine



Indicates an imminently hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, MAY result in MINOR INJURY.



Identifies special instructions or procedures that, if not strictly observed, could result in damage to, or destruction of the machine, attachments or the environment.

# INTRODUCTION

## INTRODUCTION



Your Disc mower is designed for light-duty cutting such as pasture mowing, weed and grass control. With a reasonable amount of preventive maintenance, your Mower will provide years of dependable service

### **DANGER**

For Non-Agricultural use, OSHA, ASABE, SAE, and ANSI standards require the use of Chain Guards, Deflectors, or Solid Skirts at all times. The Mower manufacturer strongly recommends the use of Chain Guards or Rubber Deflectors for Agricultural purposes as well, to reduce the risk of property damage, serious bodily injury, or even death from objects thrown out by or from contact with the Cutting Blades

### **WARNING**

At least 20% or the tractor's weight must be on the front tires with the Mower lifted to provide adequate traction for safe steering under good conditions. Slow down on hills, rough terrain, and curves

The front, rear, left, and right are determined by the normal direction of travel, the same as driving an automobile.

## INTRODUCTION

### Attention Owner/Operator

Before Operating This Machine:

1. Carefully read the Operator's Manual, completely understand the Safety Messages and instructions, and know how to operate correctly both the tractor and mower.
2. Fill out the Warranty Card in full. Be sure to answer all questions, including the Serial Number of the Mower. Mail within 30 days of delivery date of this implement.
3. Record the Mower Model and Serial Numbers on the Warranty page at the front of the Operator's Manual. Keep this as part of the permanent maintenance file for the Mower

#### Important

For your safety and to guarantee optimum product reliability, always use genuine Rhino replacement parts. The use of inferior "will-fit" parts will void warranty of your Rhino implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact

Rhino 1020 S.Sangamon Ave. Gibson City, IL 60936

800-446-5158

E-mail: [parts@servisrhino.com](mailto:parts@servisrhino.com).

# **3. ASSEMBLY SECTION**

*Assembly Section 3-1*

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# ASSEMBLY

## General Instructions

Before starting assembly and mounting of the machine, staff shall receive instruction on following safety issues:

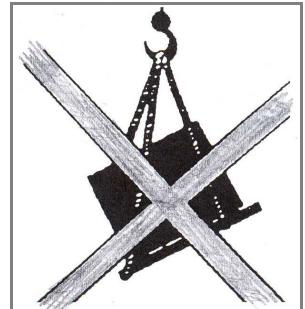
- accident risk;
- individual protection devices for the operator's safety (safety gloves and safety shoes);
- general accident prevention rules and accident prevention rules according to international directives and law provisions of destination country;
- at delivery make sure that components have not been damaged during transport.

## Handling, Delivery

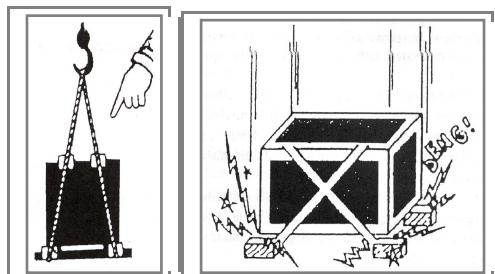
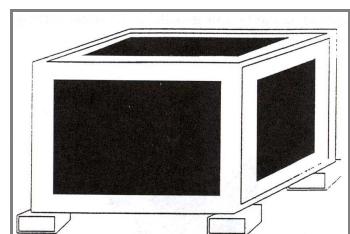
RHINO machines are packed and sent in wooden cases.  
Use suitable hoisting gears for handling packages.



If packages are unloaded from a forklift  
make sure that the weight is equally  
distributed also on forks.



If necessary place suitable wooden wedges  
under the package in order to make hoisting  
easier.



If packages are unloaded with a chain hoist or a hook, make sure  
that the load is equally distributed and use approved hoisting  
devices for the harness in conformity with law requirements.

# ASSEMBLY

## Delivery

At delivery of the machine check whether the machine corresponds to the order specifications and whether the package and the content have been damaged during transport.



### **COMPONENTS INCLUDED IN THE CRATE**

- MACHINE BODY
- COMPLETE CURVE (with plastic box and lubricator)
- SLIDE FOR ROD
- CONVEYOR INNER PART
- CONVEYOR CAN
- END-WINDING COVER WITH WINGS
- END-WINDING COVER FOR DRIVE SHAFT
- HYDRAULIC CYLINDER
- MOUNTED SPRING-HOLDER PIPE
- SAFETY RELEASE DEVICE
- RUBBER FOR HYDRAULIC CYLINDER
- STABILISING CHAIN
- SUPPORT ROD FOR SLIDE "bow"
- MOUNTED REAR WING
- FOLDED BLADE FOR FRONT WING
- FRONT WINDROW-FORMER
- FRONT GUARD
- REAR GUARD
- CURTAIN
- PTO SHAFT
- STAND (BENT TUBE)
- SHOE
- SPRING
- BAG

In order to make assembly easier and avoid any mistake please note that some bolts, nuts and washers are already inserted in the related components.

## ASSEMBLY

## BAGS

	- BAG FOR FASTENERS
	- BAG FOR CUTTERS
	- PIN FOR LIFTING LINKAGE (STANDARD LINKAGE) 4 HOLES
	- PIN FOR LIFTING LINKAGE (CHAIN LINKAGE)
	- PIN FOR CYLINDER LINKAGE

## BAG FOR FASTENERS

DESCRIPTION	Quantity
PIN 6x50	1
CABLE L= 3030 DMP	1
SELF-LOCKING NUT M12	11
SELF-LOCKING NUT M12	7
SELF-LOCKING NUTM6	3
SELF-LOCKING HEXAGONAL NUT M10	15
NUT M12 (NOT SELF-LOCKING)	2
BLACK CLAMP L= 28 cm	2
HOOK BOLT 14	1
MOUNTED QUICK COUPLING	1
STRIP WITH 2 HOLES Ø 10 FOR EXTERNAL CONVEYOR CAN	1
MOUNTED STRIP WITH QUICK COUPLING	1
ROPE-CLIP	1
25 PIN FOR LINKAGE SAFETY RELEASE FRD	1
PIN THREE POINT WITH GRIP FRD	1
PLATE with 4 HOLES FOR CURVE PIPE SLIDE SUPPORT	1
PLASTIC KNOB FOR ROPE	1
WASHER WITH HOLE 6	3
THIN FLAT WASHER 25 mm	3
THICK FLAT WASHER 25 mm	1
PLUNGER FOR STAND	1
FLAT WASHER M12	17
SPRING PLUNGER d=10x50	2

DESCRIPTION	Quantity
FLAT WASHER Ø 10	2
CLIP PIN 8	2
SPRING PLUNGER d=6x50	3
SPRING PLUNGER d=8x50	3
"R" SPRING PLUNGER d=6 ("average" size)	1
GREY PLASTIC TAP FRD	1
BLACK PLASTIC TAP FOR CONVEYOR	1
SQUARE FOOT TAP FRD	1
TIE ROD WITH EYE 12 mm TOT. LENGTH 14 cm	1
HEXAGON SET CYLINDRICAL OVAL HEAD SCREW M10x25	1
HEXAGON SET CYLINDRICAL OVAL HEAD SCREW M10x30	11
HEXAGON SET CYLINDRICAL OVAL HEAD SCREWM10x35	1
HEXAGON HEAD SCREW FLANGED KNULED M10x25	2
HEXAGON HEAD SCREW M10x90	2
HEXAGON HEAD SCREW M12x110	4
HEXAGON HEAD SCREW M12x30	2
HEXAGON HEAD SCREW M12x35	4
HEXAGON HEAD SCREW M12x45	1
HEXAGON HEAD SCREW M6x20	3
HEXAGON SET COUNTERSUNK SCREW M12x40	4
HEXAGON HEAD SCREW M10x100	2

# ASSEMBLY

## BAG FOR CUTTERS

Description	Quantity	AGM52	AGM62	AGM72	AGM82
SCREW TE M12 FOR CUTTER	10	12	14	16	
FLANGED KNULED NUT M12	10	12	14	16	
RIGHT CUTTER	6	6	8	8	
LEFT CUTTER	4	6	6	8	

## Assembly Steps

- ⦿ **STEP 1.** Remove protection foil from the case and remove the components manually (bars, windrower, curtain, carter, discs etc.).



- ⦿ **STEP 2.** Use hoist gear or chain hoist to remove the three point. Hoist gear or chain hoist must be hooked at the anchorage point as shown in the Picture.

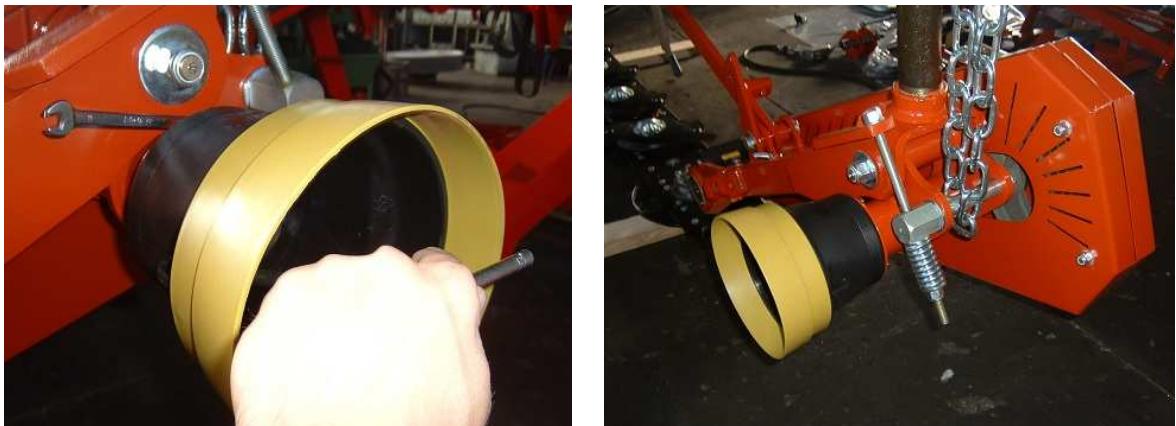


## ASSEMBLY

- ⦿ **STEP 3.** Open the wooden case from the shorter side and hook the machine to the chain hoist through the relative pin. Lift and move slowly the chain hoist outwards in order to open the mower.



- ⦿ **STEP 4** Mount the shaft guard of the PTO shaft. Use 3 hexagon head screws (T.E.) M6x20, 3 self-locking nuts M6 and 3 washers Ø 6.



- ⦿ **STEP 5.** Mount the 4-holes coupling pin of lift on the left arm of the three point linkage and lock it with no. 2 screws T.E. M12x45.



# ASSEMBLY

# ASSEMBLY

- ⦿ **STEP 6** (this operation shall be performed by two operators). Lift the three point linkage and mount it on the machine as shown in the Picture.  
An operator must keep the three point linkage in this position until the safety release device is mounted.



- ⦿ **STEP 7.** Remove partially the pin of the “end-winding cover of the three point” and the lock pin (Picture 7.1). Remove the two pins of the cover, one on each side (Picture 7.2). Insert the “end-winding cover of the three point” on the machine (Picture 7.3).



Picture 7.1



Picture 7.2.



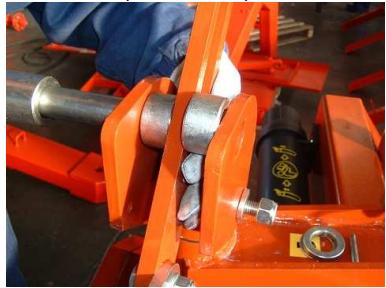
Picture 7.3

- ⦿ **STEP 8.** Mount the two cover locking pins.



## ASSEMBLY

- ⦿ **STEP 9.** Connect the blade with the lever to the pin of the three point: insert the 1<sup>st</sup> shim, the blade with the lever and then the 2<sup>nd</sup> shim (Picture 9.1). Insert the 3<sup>rd</sup> shim (Picture 9.2), the hydraulic cylinder (Picture 9.3), n2 washers and lock with 1 spring plunger size=8x50 (Picture 9.4).



Picture 9.1



Picture 9.2



Picture 9.3



Picture 9.4

- ⦿ **STEP 10.** Mount the safety release device, insert the 25 mm pin (Picture 10.1) and lock it with 2 pins size=6x50 (Picture 10.2). Lock the safety release device from the top with 1 pin size=8x50 (Picture 10.3).



Picture 10.1



Picture 10.2



Picture 10.3

- ⦿ **STEP 11.** Insert the black square plastic tap on the stand (Picture 11.1). Insert the stand on the pin on the frame bush, insert 1 flat washer Ø 25 and 1 8mm automatic pin (Picture 11.2).



Picture 11.1



Picture 11.2

# ASSEMBLY

# ASSEMBLY

- ⦿ **STEP 12.** Insert the pin with grip of the three point and lock it with 1 pin "R" Ø 6. Mount the clutch support of the hydraulic hose with 1 set hexagonal oval head screw M10x30 and one self-locking nut M 10.



- ⦿ **STEP 13.** Insert the pin for the linkage of the lifting device (on the right arm of the three point). Mount the chain support, 1 thick flat washer Ø25 and 8 mm 1 automatic pin. Connect the other end of the chain near the pin of the three point.



- ⦿ **STEP 14.** Connect the floatation device on one side to the hole shown in Picture 14.1 and on the other side to the threaded rod. Insert 1 nut M12, 1 flat washer M12 and 1 self-locking nut M12 through the rod.



Picture 14.1



Picture 14.2

## ASSEMBLY

- ⦿ **STEP 15.** Insert the free end of the rope cord through hole 1 and hole 2 as shown in the Picture. Secure the end with the rope-clip (Picture 15.2).



Picture 15.1



Picture 15.2

- ⦿ **STEP 16.** Loosen the disc-holder bolts and insert the conveyor disc that must be in phase with the adjacent disc as shown in the Picture (Picture 16.2).



Picture 16.1



Picture 16.2

*Tighten the disc-holder bolts and close the conveyor from the top with the black plastic tap.*



# ASSEMBLY

# ASSEMBLY

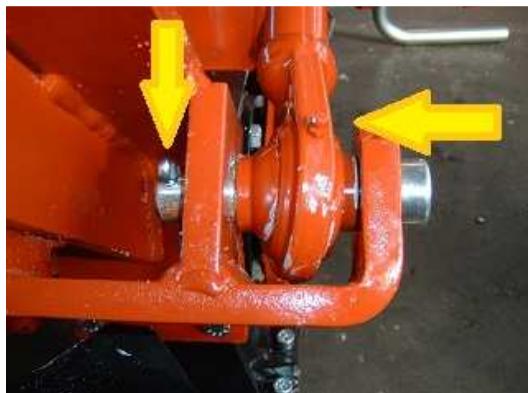
- **STEP 17.** Connect the support rod to the mower; fasten the connection plate with 4 hexagon head screws M12x35 and 4 flat washers M12. Screws must be previously treated with "self-locking thread device".



- **STEP 18.** Remove the tap from the cylinder (Picture 18.1) and the spindle with the lubricator by keeping the lubricator downwards. Mount the cylinder in the support with the pin and 1 washer Ø30 (Picture 18.2). To lock the pin insert 1 split pin 6x50 (Picture 18.2) and keep it slightly open.



Picture 18.1



Picture 18.2

## ASSEMBLY

- ⦿ **STEP 19.** Insert the threaded spindle of the stabilizer in the spring box of the pin of the three point linkage (Picture 19.1) and close the black plastic tap. Insert 1 thin flat washer Ø25 on the spring pin (Picture 19.1) and the lightening spring (Picture 19.2). Insert 1 thin flat washer Ø25 (Picture 19.3) and lock with 1 pin size =6x50 (Picture 19.3).



Picture 19.1



Picture 19.2



Picture 19.3

- ⦿ **STEP 20.** Insert the flexible hydraulic hose through the support shown in Picture 20.1. Tighten the end section of the flexible hose to the hydraulic cylinder (Picture 20.2), secure the hose to the cylinder with a strip and connect the quick coupling to the support device of the machine (Picture 20.3).



Picture 20.1



Picture 20.2



Picture 20.3

# ASSEMBLY

# ASSEMBLY

- ⦿ **STEP 21.** Fasten the folded blade to the “windrow-former” by means of 3 set hexagon head screws M10x30 and 3 self-locking nuts M10 as shown in the Picture.



- ⦿ **STEP 22.** Hook the mower to the support rod and raise slightly the machine so as to be able to insert the “shoe” under the reduction gear.



Picture 22.2

- ⦿ **STEP 23.** Fasten the “shoe” to the mowing bar by means of 2 hexagon head screws M12x30 and 2 self-locking nuts M12 for rear fastening (Picture 23.1) and 2 flanged hexagon head screws M10x20 for front fastening (Picture 23.2).



Picture 23.1



Picture 23.2

## ASSEMBLY

Connect the "windrow-former" to the "shoe" with a set hexagon oval head screw M10x35 and 1 self-locking nut M10 for rear fastening (Picture 23.1) and a set hexagon oval head screw M10x30 and a nut M10 for front fastening (Picture 23.2).



Picture 23.3

- ⦿ **STEP 24.** Mount the external bearing - "bow" – (Picture 24.1) with 4 set hexagon countersunk screws M12x40 and 4 self-locking nuts M12 (see Picture 24.2 for attaching to the mowing bar). As regards attachment to the upper rod use the plate with 4 holes, 4 hexagon head screws M12x110, 4 self-locking nuts M12 and 8 flat washers M12 (Picture 24.3) – Do not tighten too much.



Picture 24.1



Picture 24.2



Picture 24.3

- ⦿ **STEP 25.** Insert the conveyor on the external conveyor cylinder (Picture 25.1) and fasten it with the 2 hole- plate, 2 hexagon head screws M10x100 and 2 flat washers Ø10 – Do not tighten too much.



Picture 25.1



Picture 25.2

# ASSEMBLY

# ASSEMBLY

- ⦿ **STEP 26.** Lower the machine to the ground and hook it to the end-winding cover pin of the three point.



- ⦿ **STEP 27.** When the machine is on the ground tighten all the previously inserted bolts (Picture 27.1 e 27.2).



Picture 27.1



Picture 27.2

- ⦿ **STEP 28.** Mount the windrow-former on its bearing with 2 hexagon head screws M12x45, 2 self-locking nuts M12 and 2 flat washers M12.



## ASSEMBLY

⌚ **STEP 29.** Mount the cutters on the discs and follow rotating direction (right and left). It is recommended to install the cutters from the rear (Picture 29.1) except for the most external disc where cutters must be mounted from the front (Picture 29.2). Fasten the cutters with 2 screws M12 and 2 flanged knurled nuts M12 from the cutters bag.



Picture 29.1



Picture 29.2

⌚ **STEP 30.** Mount the rear bar and secure it to the upper rod with 4 cylinder hexagon head set screws M12x50 and 4 self-locking nuts M10.



# ASSEMBLY

## ASSEMBLY

➡ **STEP 31.** Mount the front bar and secure it to the upper rod with 2 hexagon head screws M10x90, 2 self-locking nuts M10 and 1 oval head set screw M12x60 with 1 self-locking nut M10 previously inserted screws and nuts.



➡ **STEP 32.** Fasten the curtain to the bars with the belts. Belts must be fastened to the internal part of the curtain.



# ASSEMBLY

● **STEP 33.** Lift the three point upwards (Picture 33.1) and hook the locking lever (Picture 33.2 and 33.3). Lower the machine to the ground.



Picture 33.1



Picture 33.2

● **STEP 34.** Adjust springs and stabilisers that shall anyway be adjusted once again when the machine is attached to the tractor.



# ASSEMBLY

ASSEMBLY



AGM 52-62-72-82

10/10

Assembly Section 3-19



# **4. OPERATION SECTION**

Operation Section 4-1

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# OPERATION

## Information on the Machine

The materials used for building RHINO mowers have been chosen according to the tasks for which the machine has been designed and built: any non-conforming use can cause damages to persons and property and affect the operation of the machine.

Conforming use of the mower also specifically includes compliance with operating, repair and maintenance instructions contained in this manual.

RHINO is in no event liable for non-conforming use of the machine.

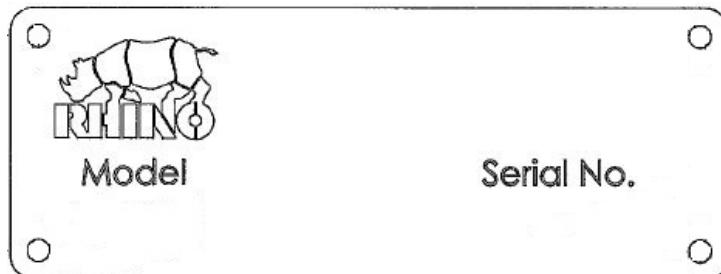
RHINO is not liable for any damages and injuries, including severe injuries, to operator and other people or property resulting from any unauthorised changes or modifications to the machine.

Proper operation of the machine and compliance with the instructions contained in the manual and safety precautions will reduce the risk of accidents and injuries and ensure higher performance, while extending machine life and reducing the risk of troubles to the lowest level.

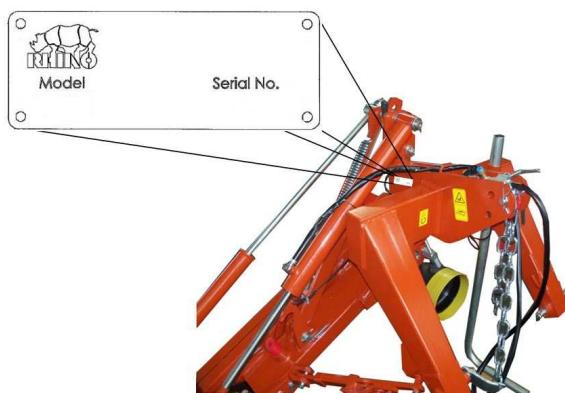
**RHINO shall in no event be liable for failure to comply with the safety instructions given in the manual.**

### **Identification of the machine**

The machine identification plate, located on the frame, bears the Manufacturer's data, the model, the serial number and the mass of the machine.



### **Location of EC plate on the machine:**



**When ordering spare parts always use the model number, frame number and year of manufacturing.**

# OPERATION

## Conforming use

ROTARY DISC MOWERS have been designed and built for use in agriculture for mowing grass, pasture and permanent grasslands, alfalfa and other kinds of fodder crop.

**The machine has been designed for professional users and shall be operated exclusively by authorised trained staff holding driving licence.**

**The machine is not designed for operation in other fields than agriculture.**

## **WARNING**

The machine is for use by one operator at a time. The use of the machine for a purpose for which it is not designed than the intended one is considered as non-conforming use.

RHINO is not liable if **safety labels** are missing, illegible or if they have been removed from their location.

If safety labels are damaged or missing, order new labels. Refer to the information contained on the machine identification plate.

This machine has been designed for use during the day. At night or under conditions of reduced visibility use the machine light devices.

**RHINO is in no event liable for any damages and injuries, including severe injuries, to operator or other people and property resulting from any unauthorised changes and modifications to the machine.**

## Adverse field conditions

This section illustrates the main adverse field conditions when using the MOWER:

Make sure that there are not any stones or rocks on the ground (diameter over 8-12cm);

Make sure that there are not any stumps higher than 10cm and diameter over 8-12cm;

Make sure that there are not any metal elements on the ground, such as nets, cables, ropes, chains, pipes etc;

Follow recommendations for height adjustment and make sure that no one is within 50m of the mower;

It is recommended not to work with the machine fully lowered to the ground in wet grass conditions to avoid damaging crop and affecting performance of the machine.

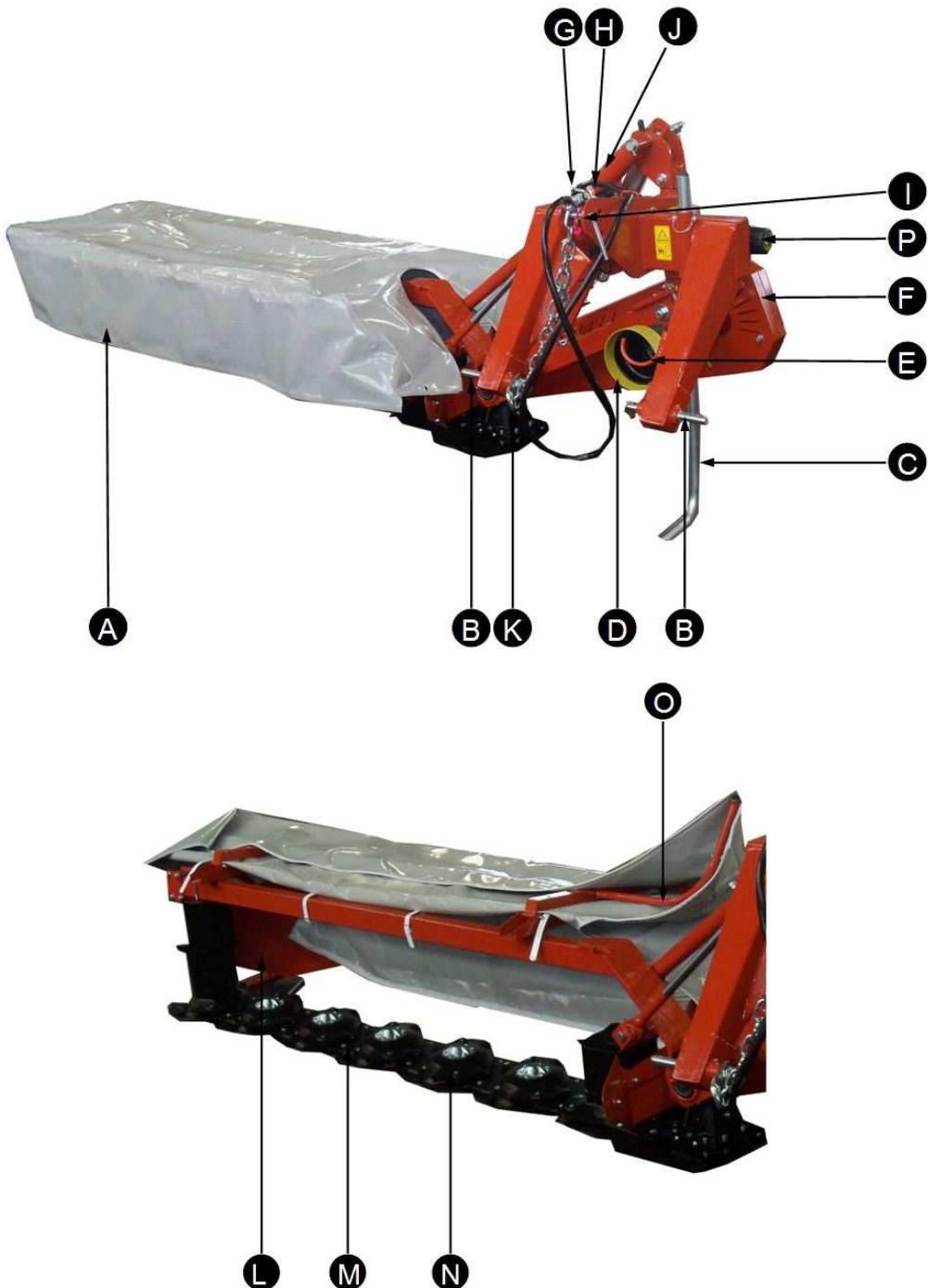
OPERATION

# OPERATION

## Features of the Machine

### Identification of the models

RHINO rotary disc mowers are available in different models in order to meet customers' specific needs:  
**AGM52; AGM62; AGM72; AGM82.**



# OPERATION

## OPERATION

<i>A. Curtain</i>	<i>I. "Three point linkage"</i>
<i>B. Lift arms couplings</i>	<i>J. Hydraulic cylinder</i>
<i>C. Stand</i>	<i>K. Gearbox</i>
<i>D. Inner cover</i>	<i>L. Windrow-former</i>
<i>E. Support leg (drive shaft)</i>	<i>M. Cutter bar</i>
<i>F. Drive belt</i>	<i>N. Cutter-holder discs of oval shape</i>
<i>G. Hydraulic locking device</i>	<i>O. Safety frame</i>
<i>H. Hydraulic hose bracket</i>	<i>P. Manual's canister</i>

## Technical Features

The machines are drawn by the tractor by means of the three point linkage. The machines are equipped with rotary cutter-holder discs of oval shape operated by the power takeoff of the tractor.

The mowing unit consists of a cutter bar to which quick rotating knives are attached. The product is cut as a result of the knives action in the lower part of the stem.



*Cutter bar*

The cutter-holder discs of oval shape have a special contour profile which ensures sturdiness even under difficult working conditions.

All machines are equipped with a safety release device. If an obstacle is hit, the safety release device allows the cutter bar to swing back, thus reducing significantly the risk of damages to the machine.

All gearings are encased in oil bath box.

# OPERATION

<i>Rotary disc mowers</i>		AGM52	AGM62	AGM72	AGM82
<b>Required power</b>	<b>HP/KW</b>	30/40	33/45	37/50	40/55
<b>Max. PTO revolutions</b>	<b>rpm</b>	540	540	540	540
<b>Cutting width</b>	<b>m</b>	2,10	2,45	2,85	3,20
<b>Discs</b>	<b>N°</b>	5	6	7	8
<b>Knives</b>	<b>N°</b>	10	12	14	16
<b>Weight</b>	<b>kg</b>	410	500	560	650
<b>Max. discs speed</b>	<b>rpm</b>	2950	2950	2950	2950
<b>Width of the machine</b>	<b>m</b>	1,40	1,40	1,40	1,40
<b>Length of the machine</b>	<b>m</b>	3,85	4,25	4,65	5,05
<b>Height of the machine</b>	<b>m</b>	1,30	1,30	1,30	1,30
<b>Height in transport position</b>	<b>m</b>	2,50	2,90	3,30	3,70

## Noise Level

**Noise level tests** are carried out on all machines manufactured by RHINO.

Depending on the position of the machine the noise level varies between 85,8 dB(A) and 87,9 dB(A).

On the basis of the noise level it is recommended to wear suitable hearing protection.



Cleaning, regular maintenance of the machine and systematic lubrication help reducing the noise produced by the machine.



The resulting noise level depends not only on the noise caused by the machine but also on other factors such as the working area and exposition to loud noise.

Nevertheless the information on the noise caused by the machine will be useful to the employee or the user in terms of risk analysis.

# OPERATION

## Packing, Transport and Lifting

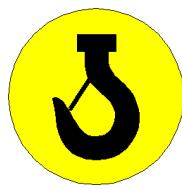
The machine can be delivered with or without packing.

If it is delivered with packing, mount the curtain.

When the machine is not attached to the tractor, it can be raised by means of a crane, using the pull eye bolt as shown in the label attached to the machine.

### **Important**

For raising the machine use safety hooks and suitable cables to be mounted as indicated by labels.



### **WARNING**

During lifting make sure that the machine is with the cutter bar in the horizontal position.

Alternatively, place the machine on wooden pallets and raise it with a forklift. Lifting of the machine shall be performed by skilled staff.

OPERATION

# OPERATION

## Storage

If the machine is not used for a long period it is necessary to store it inside to avoid exposure to weather and dust. Before operating it again, it is good practice to clean the machine and lubricate all components to prevent rust.

- Clean the machine thoroughly;
- Inspect the machine for damaged parts and scratched paint;
- Make sure that safety signs are legible and located properly on the machine. Replace damaged safety labels;
- Replace damaged or worn curtain;
- Lubricate all mechanical components, locking pins, the coupling head to the PTO joint;
- Replace oil in the gearbox and in the cutter bar following the instruction;
- Loose transmission belt, if necessary;
- If possible, store the machine inside and place it on a wooden pallet.

## Disposal and Scrapping

The machine shall be scrapped in suitable dumps in compliance with the existing law.

Collect used oil and dispose it according state and local regulations.

Used oil is harmful according to the existing law, therefore it shall be properly collected. Contact the Oil Collection Centre.

Collect properly plastics, aluminium and steel components for them to be recycled.

## Safety Rules for Attaching to the Tractor

Road behaviour, ability to swerve and brake of the tractor also depend upon the equipment mounted.

Select a safe ground speed, in particular when travelling over rough or hilly terrain, in order to avoid upset.

The load on the front axle of the tractor depends upon the weight of the attached mower; the load on the front axle shall be at least 20 % of empty weight of the tractor.

Before attaching the machine to the three point linkage position the safety device of the tractor to avoid unintentional raising or lowering of the machine.

Before hitching check lifting and stable operation of the machine referring to the formula in next paragraph.

The three point linkages of the tractor and of the machine shall correspond or be adjusted together.

Rear lifting arms could cause injury. Attach and detach the machine on level ground.

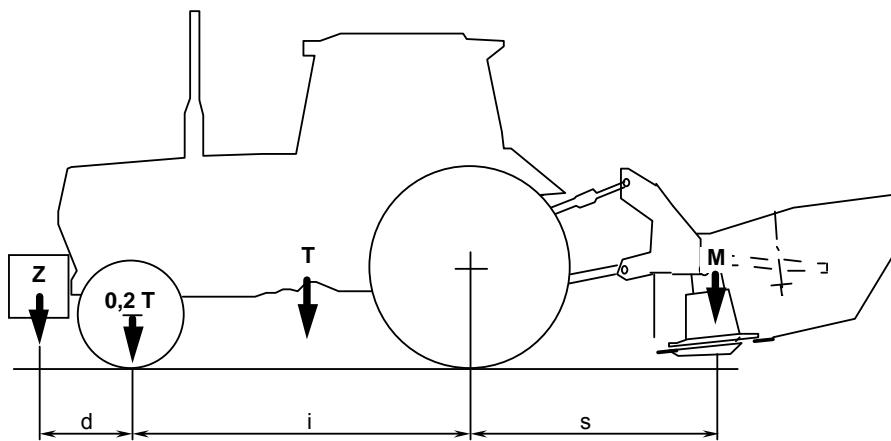
### **Never use remote control to raise the machine.**

In the transport position secure lateral drift arms.

# OPERATION

## Check Lifting and Stable Operation of the Tractor

For lifting and stable operation of the tractor refer to the following formula. Additional tractor front ballast may be needed.



$$M \times s \leq 0,2 T \times i + Z (d + i)$$

$$M \leq 0,3 T$$

<b>i</b> =	Wheelbase tractor
<b>d</b> =	Distance between front axle and ballast
<b>s</b> =	Distance to the rear axle of the machine
<b>T</b> =	mass of the tractor + 75 kg (operator)
<b>Z</b> =	Mass of ballast
<b>M</b> =	Mass of the machine

### **WARNING**

Check lifting and stable operation of the tractor in order to avoid upset and/or loss of adherence to the road.

# OPERATION

## Transport on Public Roads



### **When driving on public roads**

comply with the existing traffic regulations and, if the machine is wider than the width of the tractor, use accessory lights and devices for adequate warning to other vehicles.

When driving on public roads, in addition to traffic regulations, follow instructions noted on the tractor licence and select a safe speed especially when transporting drawn machines or when travelling over rough or hilly terrain. Before travelling on public roads after operation, clean debris from tyres and moving parts.



During transport with raised mower make sure that the control lever is properly secured to avoid unintentional lowering of the machine.

### **For road transport heed following recommendations:**

Raise the mower to the transport position (vertical) by means of the hydraulic locking device until the pin is located into the hole provided **(A)**. Make sure that the safety pin is properly secured as shown in the picture.

The cable device shall be positioned in the cabin to avoid unintentional operation.



**All machines** are equipped with the hydraulic locking device. In addition to the mechanical device, operate the hydraulic locking device **(B)** by means of the tap on the flexible hydraulic hose connected to the hydraulic couplings (quick couplings) on the tractor.

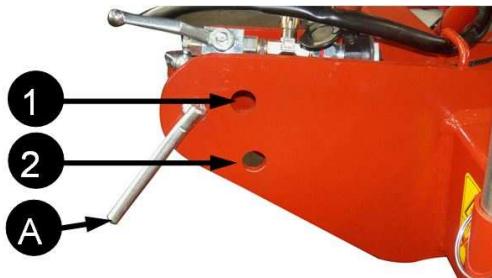


# OPERATION

## OPERATION

### Attaching to the Three Point Linkage of the Machine

RHINO mowers can be attached to any kind of tractor equipped with universal three point linkage. The area shall be properly lightened under conditions of reduced visibility. Nobody shall be within 5 metres of hitching point. To adjust the height of the "three point" remove the shear pin (A), position the pin at the suitable height (1) or (2) and secure it with the shear pin.



Approach the tractor to the mower until the lifting bars and the three point linkage of the machine are lined up and connect them with the pins.

#### **WARNING**

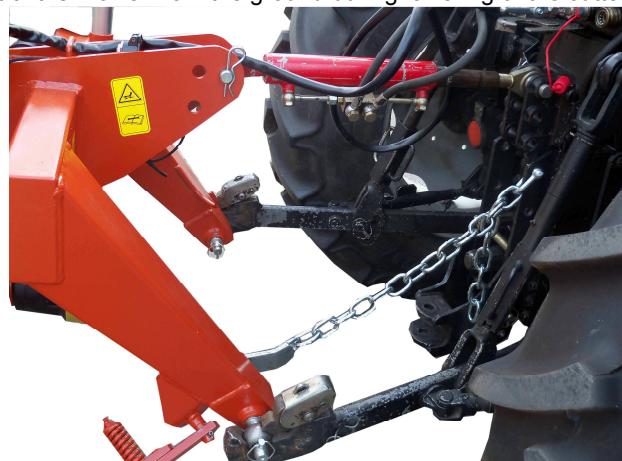
Insert and secure shear pins. Make sure that shear pins are locked properly.

Connect the three point to the upper hitch link and adjust length so that the mower is parallel to the ground. Before attaching or detaching the mower make sure that the control lever is properly positioned as to avoid unintentional raising or lowering of the mower.

#### **WARNING**

Insert and secure shear pins. Lock the safety device to avoid loosening of the three point.

Detach the chain secured to the "three point" of the mower as shown in the picture, and position it in the three point area of the tractor in order to maintain the same height of the mower from the ground during lowering of the cutter bar.



# OPERATION

Raise the stand and secure it using the pin. Stand shall always be attached to the machine.



Slightly raise the machine and use lateral lifting arms to keep the machine level.

### Detaching from the tractor

To detach the mower from the tractor is necessary to operate in this way:

- Lower the mower to ground;
- Insert the lock lever, as shown in picture;
- Lift up the machine;
- Insert the stand;
- Lower the mower again to ground;
- Detach the third point and then the two lift arms.



# OPERATION

## Assembly of the PTO Drive Shaft

After attaching the machine to the tractor, connect the PTO drive shaft to the power takeoff of the tractor (before performing this operation stop engine and remove the key).

**Before using the drive shaft read the use and maintenance manual of the drive shaft.**

**If you use a different drive shaft type than the one supplied with the machine, make sure that the covers of the machine and the tractors overlap by at least 5 cm in compliance with existing law.**

- Clean and lubricate the power takeoff.
- Lubricate on a regular basis the drive shaft following the instructions given by the manufacturer of the drive shaft (see Use and Maintenance Manual of the drive shaft).
- Follow assembly instructions given by the manufacturer and direction indicated on the external side of the guard (drawing of the tractor on the external pipe of the shaft towards the power takeoff of the tractor).
- Hang chains to avoid rotation.
- Make sure that the safety locking device (pushbutton or ring-nut) is properly installed and secured.

### **CAUTION**

Check the direction of rotation and make sure that the power takeoff speed is 540 rpm, because the machine has been designed for this speed.



### **WARNING**

Connect the drive shaft last to the power takeoff and detach it first after operation.

# OPERATION

### **Use only drive shafts with all safety guards in good conditions.**

The length of the drive shaft shall be adapted to the tractor.

WHENEVER the drive shaft is disengaged from the power takeoff of the tractor place it on its support leg.



*Support leg of the drive shaft*

**RHINO is not liable for any damages resulting from misuse and improper assembly of the drive shaft.**

# OPERATION

## OPERATION

### Hydraulic System

Before connecting the hydraulic couplings (quick couplings) to the distributors of the tractor stop engine and operate the distributors levels in both directions in order to make sure that the circuits of the tractor and the machine are not under pressure.

Check hydraulic hoses for wear and scratches after every operation and replace them with new ones provided by the Manufacturer if necessary.

If there is a leak stop the engine of the tractor, disengage PTO, relieve pressure in the hydraulic system, disconnect hydraulic hoses using safety gloves (make sure you have a bin to collect used oil ) and replace them with new ones supplied by the Manufacturer. Used oil is harmful according to the existing law, therefore it shall be collected properly.

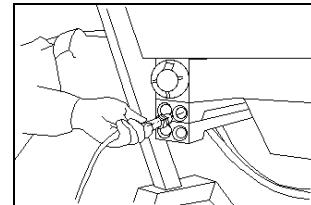
Fluids under pressure such as oil in an hydraulic system can cause severe injury and infections. Seek medical assistance if necessary.

Make sure that all couplings are clean and in good conditions before connecting the quick hydraulic hoses to the tractor.

#### **Important**

Make sure that all hydraulic hoses are installed properly.

Check wear on hydraulic hoses and replace them if necessary (anyway at least every 6 years).



#### **WARNING**

The hydraulic cylinder is supplied without oil.

Fill the hydraulic system and drive at least twice to the right and to the left respectively to check proper connection of the system.

After mowing place hydraulic hoses in their brackets.



# OPERATION

## Adjustment

Before operating the machine make the necessary adjustments.

Correct adjustment of the machine ensures proper operation of the machine, and helps improve performance and reduce knives wear.

- In order to reduce the load of the machine on the ground and for the machine to be parallel to the ground use the bolts **(A)** as shown in the picture.



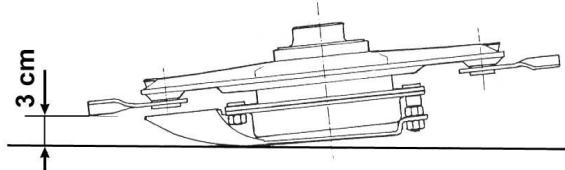
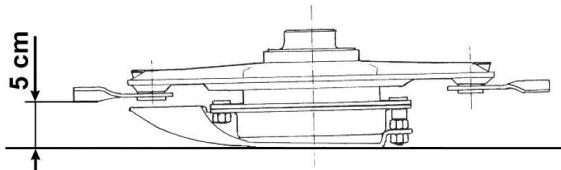
- To adjust lowering of the machine to the working position and work on hilly terrain (with max. between 15° and 20°), use adjustment bolts **(B)** as shown in the picture.

## OPERATION

- To change windrow form move the rear adjustable wings. The mower is equipped with two windrow-formers.



- Adjustment of cutting height is achieved by altering the forward tilting angle of the mower. In order to tilt the mower bar forward use the tractor three point linkage.



To raise up the cutting height up to 6-7 inches, is possible to equip the cutting bar with a slide plate (Cutting Height Kit)

In general quality of mowing and power requirement depend upon:

- Kind of product to be mowed;
- Type of knives used;
- Working height;

Speed of the tractor.

## OPERATION

### Operating Instructions

#### **WARNING**

Before operation check the oil level in the gearbox and if necessary add some oil (for this operation follow instructions contained in par. 6.2).



Wear suitable Protective Devices (safety shoes, safety gloves, ear plug, dust mask and safety glasses)

#### **WARNING**

During operation make sure that no people or animals are within 50 meters of the machine.



#### **WARNING**

The curtain shall be in place around the cutter bar to prevent the hazard of thrown objects. Check wear and scratches on the curtain.

Make sure that knives can rotate freely.

**RHINO recommends to use tractors with cabin and to mount a protective grid behind the driver's seat to protect operator against thrown objects.**

# OPERATION

Make sure that the hydraulic tap is open and release the locking device of the mower unit by pulling the cable, which shall be positioned in the driver's seat area.

Lower the mowing unit with the aid of the distributor located on the tractor.

Release the locking lever so that the machine can pivot in the working position.



## OPERATION

### **WARNING**

Before dismounting from the tractor to make any adjustment stop the engine of the tractor, disengage power takeoff, set hand brake and remove the ignition key.



Position the "power takeoff" level to 540 rpm

Increase engine speed to run the tractor at 1000 ÷ 1300 rpm and reach 250 ÷ 300 rpm power takeoff.

Drive a short distance and check mowing, review adjustments if necessary.

It is recommended to select a speed between 6 and 9 mph. Anyway, speed shall depend upon the kind of terrain.

During working avoid turns with the machine lowered to the ground and do not drive the tractor in the reverse motion.

**Before changing direction and turning raise the mower and disengage power takeoff.**

**Hard working conditions, for instance rough terrain, require a slower speed.**

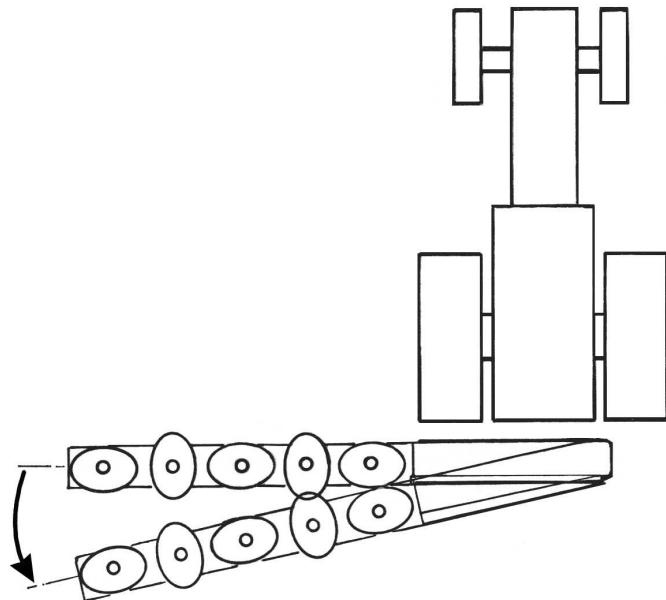
# OPERATION

## Safety Release Device

If an obstacle is hit, the safety release device allows the cutter bar to swing back, thus providing shock absorption.

Stop engine and disengage power takeoff of the tractor. Before reinstalling the safety device reverse the tractor for 7ft.

Before resuming operation check adjustment of the safety release device and make sure that cutter components have not been damaged.



# OPERATION

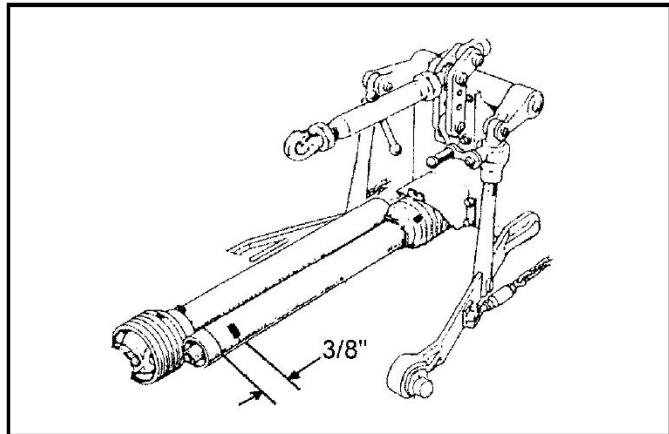
## OPERATION

### Driveline Attachment

#### Adjusting Shaft Length

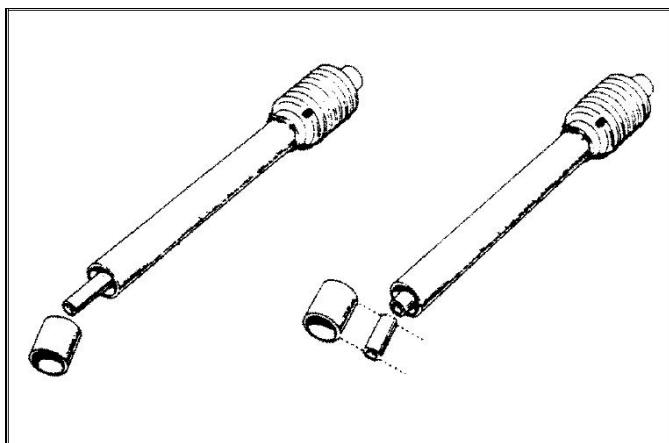
1. Slide the two halves of the shaft apart and connect the halves to the tractor PTO shaft and the mower input shaft.

2. Lay the shaft sections side-by-side. Mark the shield on the tractor end where it meets the shield cone on the mower end. Measure 3/8" back toward the tractor and make a second mark.

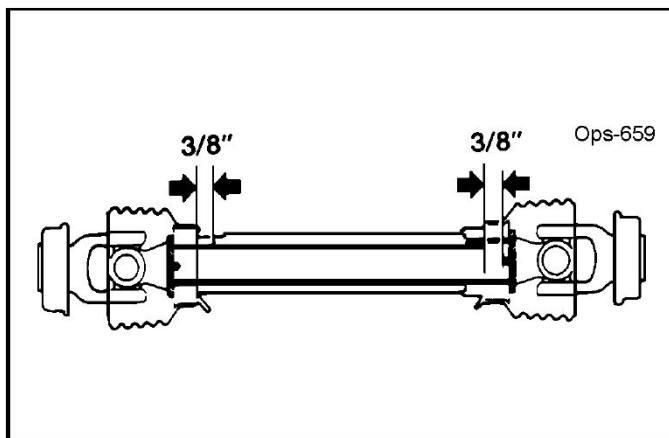


3. Cut off the shield at the second mark. Now cut off the same amount of the shaft as removed from the shield and deburr the end of the shaft.

4. Cut the shield and shaft of the mower half so the same amount is removed as the tractor half. Deburr the ends, lubricate the shaft halves with grease and reassemble the halves.

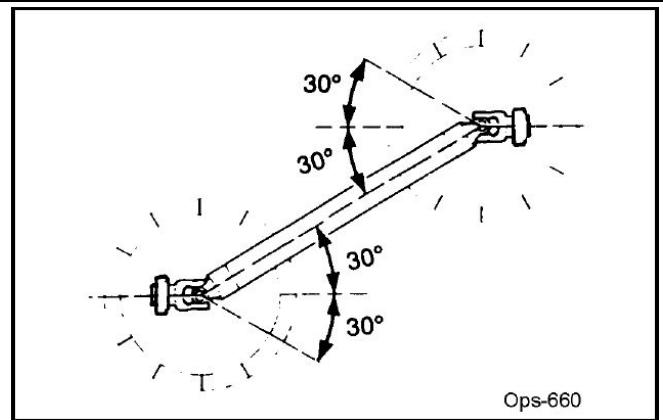


5. Install the IID shaft on the tractor and mower. Raise and lower the mower to check for shaft contact (bottoming-out) with the mower yoke end. At the maximum compressed point, the shaft should look like image. Make sure that at least 4" on the inner shaft remains engaged in the outer shaft at all times.



# OPERATION

6. Check the angle of the joints at each end of the IID shaft when the mower is in operating position. The maximum operating angle is 30 degrees.



### Important

Failure to make these adjustments prior to operating the cutter could result in premature IID shaft failure.

### WARNING

NEVER OPERATE THE MOWER WITH THE SHIELDS OR GUARDS REMOVED. DO NOT APPROACH ROTATING SHAFTS WHEN IN OPERATION.

#### Belt Tension Adjustment

The belt tension must be adjusted properly to prevent the belt from slipping. To adjust the belt tension, loosen the jam nut and tighten the nuts on the Tensioning Rod until each belt can be depressed 1/2" when a force of 11 pounds is applied to the belt at a point midway between the pulley.

**NOTE:** *It is important that the belt tension be checked during the first few hours of operation and periodically thereafter.*



# OPERATION

## Pre-Operation Inspection and Service

Before each use, a pre-operation inspection and service of the implement and tractor must be performed.

This includes routine maintenance and scheduled lubrication, inspecting that all safety devices are equipped and functional, and performing needed repairs. DO NOT operate the unit if the pre-operation inspection reveals any condition affecting safe operation. Perform repairs and replacement of damaged and missing parts as soon as noticed. By performing a thorough pre-operation inspection and service, valuable down time and repair cost can be avoided. *OPS-U-0029*



Always disconnect the main PTO Driveline from the Tractor before performing service on the Implement. Never work on the Implement with the tractor PTO driveline connected and running. Rotating Parts, Blades or Drivelines could turn without warning and cause immediate entanglement, injury or death. (S3PT-11)



Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death. (SG-14)



Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)



OPERATION

# OPERATION

## Tractor Pre-Operation Inspection/Service

Refer to the tractor operator's manual to ensure a complete pre-operation inspection and scheduled service is performed according to the manufacturers recommendations. The following are some of the items that require daily service and inspection:

- Tire condition/air pressure
- Wheel lug bolts
- Steering linkage
- PTO shield
- SMV sign is clean and visible
- Tractor's lights are clean and functional
- Tractor Seat belt is in good condition
- Tractor ROPS is in good condition
- ROPS is in the raised position
- No tractor oil leaks
- Radiator free of debris
- Engine oil level and condition
- Engine coolant level and condition
- Power brake fluid level
- Power steering fluid level
- Fuel condition and level
- Sufficient lubrication at all lube points
- Air filter condition *OPS-U-0030*



Op-13

## Mower Pre-Operation Inspection/Service

Before each mower use, a complete inspection and service is required to ensure the mower is in a good and safe working condition. Damaged and/or broken parts should be repaired and/or replaced immediately. To ensure the mower is ready for operation, conduct the following. *OPS-R-0007*

The operator's manual and safety signs affixed on the unit contain important instructions on the safe and proper use of the equipment. Maintain these important safety features on the implement in good condition to ensure the information is available to the operator at all times.

- Ensure the manual canister is secured to the equipment with the operator's manual inside.
- Ensure all safety signs are in place and legible. Replace missing, damaged, and illegible decals. *OPS-U-0011*



Op-14

# OPERATION

- Perform scheduled lubrication as detailed in the maintenance section.
- Ensure all decals are in place and legible.
- Ensure the driveline is securely attached to tractor. Make sure the driveline yoke locking collar is securely seated in the grooves of the PTO shaft by pushing and pulling the yoke several times.
- Lift Type-Inspect that the 3-point hitch pins are the proper size, correctly installed, and secured to the tractor lift arms with retaining pins inserted.
- Pull Type-Inspect that the hitch pin is the correct size. *OPS-R-0008\_E*



## DANGER

All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Chain Guards, Steel Guards, Gearbox Shields, PTO integral shields, and Retractable Door Shields should be used and maintained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SCM-3)

- Inspect the gearbox oil level. A low oil level is a warning sign that the gearbox may be cracked or its seal is damaged and needs replacement.
- Ensure the gearbox vent is in place and free from clogs. *OPS-R-0040*

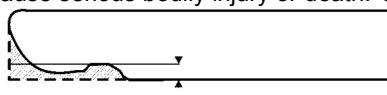


## DANGER

Inspect the Blades daily for abnormal wear. REPLACE BOTH BLADES on that carrier IMMEDIATELY if either blade has:

- Become bent or deformed from it's original shape or
- Any cracks are visible, or
- Deep gouges in the blade's surface are present, or
- Gouges or chipped areas in the cutting edge are larger than 1/2"(12.7mm), or
- The material on the leading edge has been worn away by more than 1/2(12.7mm)"

Failure to replace abnormally worn blades may lead to catastrophic failure of the blades and ejection of the broken part with tremendous force which may cause serious bodily injury or death. *OPS-U-0032*



Original Blade Edge

**NOTE:**  
Replace Blades in pairs after no more than 1/2" (12.7mm) wear

# OPERATION

# OPERATION



## Disc Mower PRE-OPERATION Inspection

Mower ID# \_\_\_\_\_ Make \_\_\_\_\_

Date \_\_\_\_\_ Shift \_\_\_\_\_

Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific comment if not O.K.
The Operator's Manual is in the canister on the mower		
All safety decals are in place and legible		
The tongue/hitch connection bolts & pins are tight		
There are no cracks in tongue or hitch		
The tow chain is secured to the tractor & mower		
The hydraulic cylinders pins are tight		
There are no leaking or damaged hoses		
The mower deck is clear of cut grass and debris		
Chain guards/deflectors are in place & in good condition		
Driveline/gearbox shields are in good condition		
Driveline clutches are in good condition; not frozen		
Driveline telescoping members & U-joints are lubricated		
Driveline yokes are securely attached to PTO & mower		
Gearbox mounting bolts are tight		
Gearbox oil is at the proper level		
Blade carrier retaining nut is tight		
Blades are not chipped, cracked or bent		
Blade bolts are tight		
Wheel lug nuts are tight		
Transport locks are in good condition		

Operator's Signature: \_\_\_\_\_

**DO NOT OPERATE an UNSAFE TRACTOR or MOWER**

# OPERATION



## Disc Mower PRE-OPERATION Inspection

Tractor ID# \_\_\_\_\_ Make \_\_\_\_\_

Date \_\_\_\_\_ Shift \_\_\_\_\_

### **WARNING**

Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

OPERATION

Item	Condition at Start of Shift	Specific comment if not O.K.
The flashing lights function properly		
The SMV Sign is clean and visible		
The tires are in good condition with proper pressure		
The wheel lug bolts are tight		
The tractor brakes are in good condition		
The steering linkage is in good condition		
There are no visible oil leaks		
The hydraulic controls function properly		
The ROPS or ROBS Cab is in good condition		
The seatbelt is in place and in good condition		
The 3-point hitch is in good condition		
The drawbar pins are securely in place		
The PTO master shield is in place		
The engine oil level is full		
The brake fluid level is full		
The power steering fluid level is full		
The fuel level is adequate		
The engine coolant fluid level is full		
The radiator is free of debris		
The air filter is in good condition		

Operator's Signature: \_\_\_\_\_

**DO NOT OPERATE an UNSAFE TRACTOR or MOWER**

# OPERATION

## Driving the Tractor and Implement

Safe tractor transport requires the operator possess a thorough knowledge of the model being operated and precautions to take while driving with an attached implement. Ensure the tractor has the capacity to handle the weight of the implement and the tractor operating controls are set for safe transport. To ensure safety while driving the tractor with an attached implement, review the following. OPS-U- 0012



Never run the Tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23)



Transport only at speeds where you can maintain control of the equipment. Serious accidents and injuries can result from operating this equipment at high speeds. Understand the Tractor and

Implement and how it handles before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.



Before transporting the Tractor and Implement, determine the proper transport speeds for you and the equipment. Make sure you abide by the following rules:

Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum transport speed not to exceed 20 mph (30 km/h) for transporting this equipment.

Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that the equipment can be operated at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum turning speed for you and this equipment before operating on roads or uneven ground.

Only transport the Tractor and Implement at the speeds which allow you to properly control

the equipment. Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes or worn tires. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)



# OPERATION

## OPERATION

### Starting the Tractor

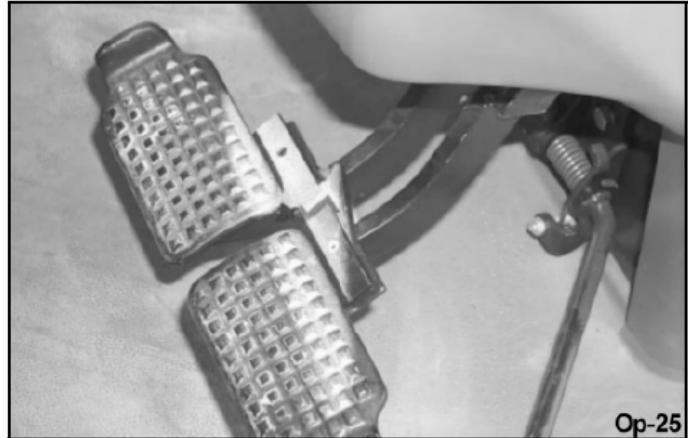
The procedure to start the tractor is model specific. Refer to the tractor operator's manual for starting procedures for your particular tractor. Consult an authorized dealer if the starting procedure is unclear. Ensure the 3-point control lever is in the lowered position and the PTO is disengaged before starting the tractor. OPS-U-0033



### Brake and Differential Lock Setting

Make sure the tractor brakes are in good operating condition. Tractor brakes can be set to operate independently allowing single rear wheel braking action or locked together to provide simultaneous rear wheel braking. FOR MOST DRIVING AND OPERATING CONDITIONS, THE BRAKE PEDALS SHOULD BE KEPT TOGETHER TO PROVIDE THE MOST EFFECTIVE BRAKING ACTION.

Always disengage the tractor differential lock when turning. When engaged the differential lock will prevent or limit the tractor from turning. During normal cutting conditions, locking the differential provides no benefit and should not be used. OPSU-0013



### WARNING

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes. When operating down a hill or on wet or rain slick roads, the braking distance increases; use extreme care and reduce your speed in these conditions. When operating in traffic, always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy.

# OPERATION

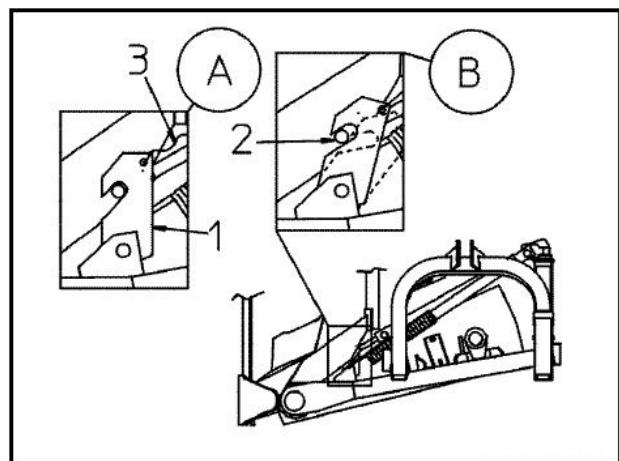
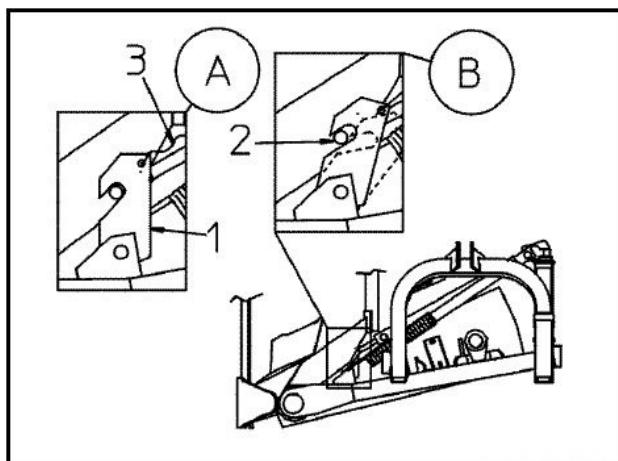
## Working Position

To move from the transport position to the work position proceed as follows:

### CAUTION

BEFORE STARTING OPERATION, MAKE SURE THERE ARE NO PEOPLE OR ANIMALS IN THE VICINITY OF THE MOWER.

1. Send the cylinder shaft backwards slightly but keep rope 3 stretched until pin 2 is unlocked. (See Figure 12)
2. Extend the cylinder until the disc carrier bar is horizontal.
3. Lower the mower, fasten adjustment chain 2 to the tractor's top link support bracket and adjust to maintain the ground-to-linkage height of 19.7".(See Figure 13)
4. Lower protection plate and check that the driveline is connected to mower.



### CAUTION

Make sure the adjustment chain is always well stretched when machine is working to prevent pin from being damaged.

# OPERATION

## OPERATION

### Driving the Tractor and Mower

Start off driving at a slow speed and gradually increase your speed while maintaining complete control of the tractor and mower. Moving slowly at first will also prevent the tractor from rearing up and loss of steering control. The tractor should never be operated at speeds that cannot be safely handled or which will prevent the operator from stopping quickly during an emergency. If the power steering or engine ceases operating, stop the tractor immediately as the tractor will be difficult to control.

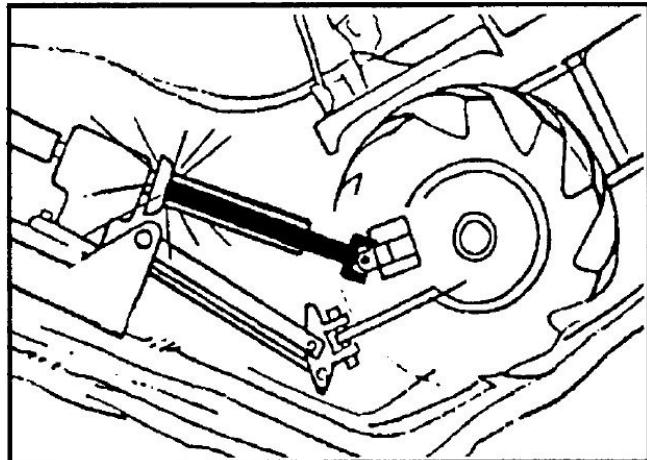
Perform turns with the tractor and mower at slow speeds to determine how the tractor with an attached mower handles a turn. Determine the safe speed to maintain proper control of the tractor when making turns. When turning with a towed implement, the overall working length of the unit is increased. Allow additional clearance for the mower when turning.

To avoid overturns, drive the tractor with care and at safe speeds, especially when operating over rough ground, crossing ditches or slopes, and turning corners. Tractor wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.

Use extreme caution when operating on steep slopes. Keep the tractor in a low gear when going downhill. DO NOT coast or free-wheel downhill. *OPS-R-0019\_B*

### Crossing Ditches and Steep Inclines

When crossing ditches with steep banks or going up sharp inclines, it is possible that the main driveline inner profile will penetrate into the outer housing to its maximum depth until the assembly becomes solid (driveline is at its extreme shortest length). This type of abusive operation can cause serious damage to the tractor and mower drive by pushing the PTO into the tractor and through the support bearings or downward onto the PTO shaft, breaking it off.



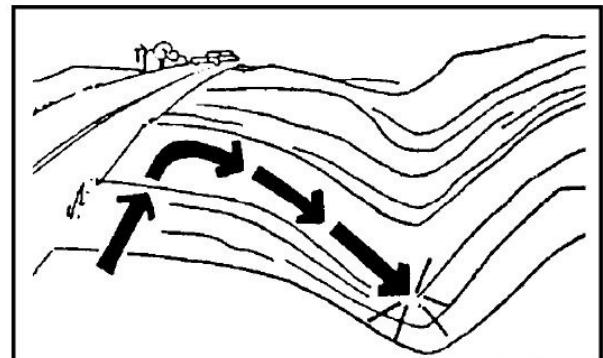
### **WARNING**

Damage resulting from over-collapse of the driveline's inner profile and its outer housing may allow the driveline to come loose from the Tractor which could cause bodily injury to the operator or bystanders and/or extensive damage to the Tractor or Implement. *OPS-R-0020*

## OPERATION

# OPERATION

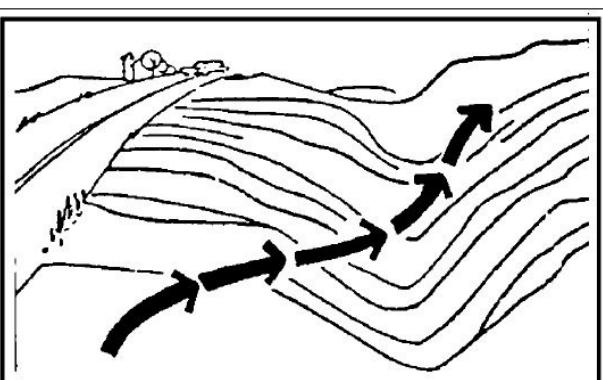
When confronted with an incline or ditch, do not approach from an angle which is perpendicular or straight on as damage to or over-collapse of the driveline may occur. OPS-R-0021\_A



INCORRECT: DO NOT approach ditch straight on

Inclines and ditches should be approached along a line which is at an angle as shown. This type of path will reduce the possibility of over-collapse of the driveline and resulting damage. If the gradient is so steep that such an approach increases the possibility of a tractor roll-over, select an alternate crossing path.

When operating the tractor and mower across slopes and inclines, through ditches, and other uneven terrain conditions, it is important to maintain sufficient deck to ground clearance. Blade contact with the ground may cause soil, rocks and other debris to be thrown out from under the mower resulting in possible injury and/or property damage. Ground contact also produces a severe shock load on the mower drive and to the mower blades resulting in possible damage and premature wear. OPS-R-0022



CORRECT: Approach ditch at an angle

# OPERATION

## Operating the Tractor and Implement

**THE OPERATOR MUST COMPLETELY UNDERSTAND HOW TO OPERATE THE TRACTOR AND IMPLEMENT AND ALL CONTROLS BEFORE ATTEMPTING TO OPERATE.** The operator must read and understand the Safety and Operation Sections of the implement and tractor operator's manuals. These manuals must be read and explained to any operator who cannot read. Never allow someone to operate the implement and tractor without complete operating instructions.

Before starting any operation, the operator must become familiar with the area to be worked in and any obstacles and hazards contained within to ensure safety to the operator, bystanders, and equipment. Special attention should be paid to foreign debris, rough terrain, steep slopes, and passersby and animals in the area. OPS-U-0015

### **WARNING**

Extreme care should be taken when operating near loose objects such as gravel, rocks, wire, and other debris. Inspect the area before mowing. Foreign objects should be removed from the site to prevent machine damage and/or bodily injury or even death. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator. Stop mowing immediately if blades strike a foreign object. Repair all damage and make certain rotor or blade carrier is balanced before resuming mowing. (SGM-05)



### **WARNING**

Many varied objects, such as wire, cable, rope, or chains, can become entangled in the operating parts of the mower head. These items could then swing outside the housing at greater velocities than the blades. Such a situation is extremely hazardous and could result in serious injury or even death. Inspect the cutting area for such objects before mowing. Remove any like object from the site. Never allow the cutting blades to contact such items. (SGM-06)

OPERATION

# OPERATION

## Foreign Debris Hazards

Before mowing, inspect the area to make sure there are no foreign objects that the mower blades could hit or become entangled with. Remove all foreign objects and debris. If objects are too big to remove, mark them clearly and be sure to prevent the mower blades from contacting them.

If you hit a solid object or foreign debris, stop the mower and tractor at once. Immediately idle the engine speed and disengage the PTO. Wait for all mower rotating motion to stop, then raise the mower and move the tractor and implement off the object. Inspect the area and remove, or mark the location of the debris. Inspect the condition of the mower and make any needed repairs immediately. Make sure the blades are not damaged and the carrier is balanced before resuming operation.

Always wear your seat belt securely fastened and only operate the tractor and mower with the ROPS in the raised position. If the tractor or mower hits a tree stump, rock, or bump, a sudden movement could throw you off of the seat and under the tractor and/or mower. The seat belt is your best protection from falling off the tractor and the ROPS provides protection from being crushed during a tractor roll-over. *OPS-R-0023*



## Bystanders/Passersby Precautions

If a bystander comes within 300 feet of the tractor while the mower is being operated, stop the tractor at once, idle the engine and disengage the PTO. Do not engage the PTO again until all bystanders are well past the 300 foot distance. *OPS-R-0024*

# OPERATION

## DANGER

Rotary Mowers are capable under adverse conditions of throwing objects for great distances (300 feet or more) and causing serious injury or death. Follow safety messages carefully.



STOP MOWING IF PASSERSBY ARE WITHIN 100 YARDS UNLESS:

- Front and Rear Deflectors, Chain Guards, or Bands are installed and in good, workable condition;
- Mower sections or Wings are running close to and parallel to the ground without exposed Blades;
- Passersby are outside the existing thrown-object zone;
- All areas have been thoroughly inspected and all foreign material such as rocks, cans, glass, and general debris has been removed.

**NOTE:** Where there are grass and weeds high enough to hide debris that could be struck by the blades, the area should be: inspected and large debris removed, mowed at an intermediate height, inspected, closely with any remaining debris being removed, and mowed again at desired final height. (This will also reduce power required to mow, reduce wear and tear on the Mower drivetrain, spread cut material better, reduce streaking, and make the final cut more uniform). (SRM-01)

## Engaging the Power Take Off (PTO)

Before engaging the PTO, make certain that the area is clear of bystanders and passersby. The implement must be completely lowered and the deck positioned at a safe operating height. NEVER engage the PTO with the implement in the raised position.

Set the tractor engine speed at approximately 1,000 RPM before engaging the PTO. Shift the PTO control to the on position, and slowly increase the engine speed until the PTO is operating at the rated speed. If you hear unusual noises or see or feel abnormal vibrations, disengage the PTO immediately. Inspect the implement to determine the cause of the noise or vibration and repair the abnormality. OPS-U- 0027

## WARNING

Do not let the Blades turn when the Mower Deck is raised for any reason, including clearance or for turning. Raising the Mower deck exposes the Cutting Blades which creates a potentially serious hazard and could cause serious injury or even death from objects thrown from the Blades. (SRM-07)



## WARNING

Do not put hands or feet under mower decks. Blade Contact can result in serious injury or even death. Stay away until all motion has stopped and the decks are securely blocked up. (SGM-09)



# OPERATION

## PTO RPM and Ground Speed

Ground speed for mowing will depend upon the height, type, and density of vegetation to be cut. Recommended speed for efficient mower performance is between 2 and 5 mph(3-8 kph). Operate the mower at its full rated PTO speed to maintain blade speed for a clean cut. Refer to the tractor operator's manual or the tractor instrument panel for the engine speed and gear to provide the required PTO and desired ground speed. Make sure that the mower is operating at its full rated speed before entering the vegetation to be cut. If it becomes necessary to temporarily regulate engine speed, increase or decrease the throttle gradually.

Ground speed is achieved by transmission gear selection and not by the engine operating speed. The operator may be required to experiment with several gear range combinations to determine the best gear and range which provides the most ideal performance from the mower and most efficient tractor operation. As the severity of cutting conditions increase, the ground speed should be decreased by selecting a lower gear to maintain the proper operating PTO speed. OPS-R-0025



Do not exceed the rated PTO speed for the Implement. Excessive PTO speeds can cause Implement driveline or blade failures resulting in serious injury or death. (SG-26)



Mow at the speed that you can safely operate and control the tractor and mower. The correct mowing speed depends on terrain condition and grass type, density, and height of cut. Normal ground speed range is from 2 to 5 mph(3-8 km/h). Use slow mowing speeds when operating on or near steep slopes, ditches, drop-offs, overhead obstructions, power lines, or when debris and foreign objects are to be avoided. (SGM-07)

## Operating the Mower

Only operate the mower from the tractor operator's seat with the seatbelt securely fastened. The tractor must be equipped with a ROPS in the raised position or a ROPS cab.

The mower is designed to cut vegetation up to 1" in diameter. Sharp blades will produce a cleaner cut and require less power. Travel at a speed that allows the mower sufficient time to cut through the vegetation and maintain the PTO operating speed to prevent overloading the mower and tractor. Choose a driving pattern that provides the maximum pass length and minimizes turning.

Under certain conditions, tractor tires may roll some grasses down preventing them from being cut at the same height as the surrounding area. When this occurs, reduce the tractor ground speed while maintaining the operating speed of the mower. A slower ground speed will permit grasses to at least partially rebound and be cut. Taking a partial cut and/or reversing the direction of travel may also help produce a cleaner cut.

Avoid mowing in the reverse direction when possible. In situations where the mower must be backed to access areas to be cut, make sure there are no persons or other foreign debris behind the mower before mowing in reverse. When mowing in reverse, operate the tractor and mower at a reduced ground speed to ensure tractor and mower control is maintained. OPS-R-0026\_G

Before operating the mower place the mower on the ground so that the disc carrier bar is horizontal. Also make sure that the knives are well sharpened, especially if the grass is thin, dry or sparse. Switch on the power take off rotation and gradually accelerate.

# OPERATION

## OPERATION

Mower input rotation speed must be about 540revs/minute. If the bar is working for long periods on sloping ground, it is recommended to hold the mower in the horizontal position for a few minutes every half hour of work.

### Shutting Down the Implement

To shut down attached mower head, first bring the tractor to a complete stop. Decrease engine RPM to idle then disengage cutterhead. The mower head will come to a complete stop within a suitable amount of time. Do not engage or disengage the cutterheads at a high RPM unless there is an emergency situation.



Park the tractor on a level surface, place the transmission in park or neutral and apply the parking brake, lower the attached implement to the ground, shut down the engine, remove the key, and wait for all motion to come to a complete stop before exiting the tractor. OPS-U- 0016



### Disconnecting the Mower From the Tractor

Before disconnecting the mower, the PTO must be disengaged and blade rotation at a complete stop. Move the mower to a level storage location and lower it to the ground. If the mower is not resting securely on the ground, block the mower up securely before attempting to disconnect it from the tractor.

Use extreme care to keep feet and hands from under the mower and clear of any pinch points caused by the tractor hitch arms and mower pins. OPS-R-0030\_A



# OPERATION

## OPERATION

### **DANGER**

Always shut the Tractor completely down, place the transmission in park, and set the parking brake before you or anyone else attempts to connect or disconnect the Implement and Tractor hitches. (S3PT-15)

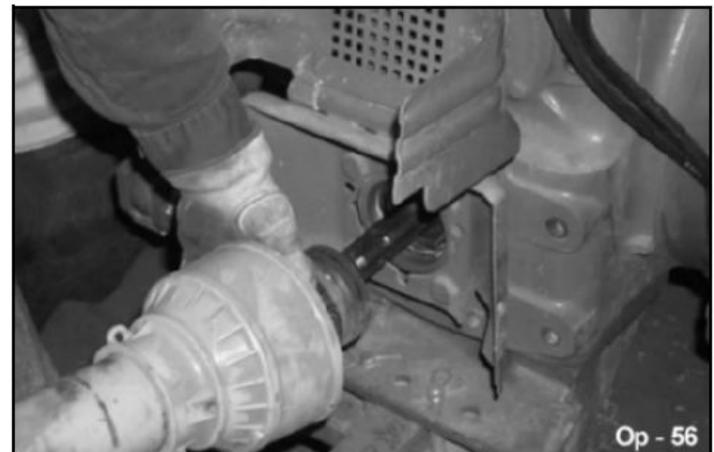
### **WARNING**

Never unhitch without using the Tongue Jack. The Tongue is very heavy. Attempting to lift the Tongue without using the Tongue Jack could cause strains or other injury. Allowing the tongue to fall suddenly and unexpectedly could result in crushing injury. Use the Tongue Jack for lifting the Implement only. Overloading the Tongue Jack can cause failure with possible serious bodily injury or even death. (STI-04)

To disconnect the mower, first extend the tractor 3-point hitch top link to remove tension on the top link hitch pin. When the pin is loose and easy to rotate, remove the pin from the mower. Next remove both lower hitch pins.



After disconnecting the 3 lift points, remove the mower driveline from the tractor PTO shaft. Lay the driveline down carefully on support flat to avoid damaging the driveline or its shield. Do not let the driveline fall into mud or dirt, which can contaminate the bearing and shorten the life of the driveline. OPS-R-0031\_B



# OPERATION

## OPERATION

### Mower Storage

Properly preparing and storing the mower at the end of the season is critical to maintaining its appearance and to help ensure years of dependable service. The following are suggested storage procedures:

- Thoroughly clean all debris off the mower to prevent damage from rotting grass and standing water.
- Lubricate all mower grease points and fill gearbox oil levels as detailed in the maintenance section.
- Tighten all bolts and pins to the recommended torque.
- Check the mower for worn and damaged parts. Perform repairs and make replacements immediately so that the mower will be ready for use at the start of the next season.
- Store the mower in a clean, dry place with the mower housing resting securely on blocks or at ground level.
- Keep the driveline yoke from sitting in water, dirt and other contaminants.
- Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the mower. *OPS-R-0032\_D*



Op - 152



Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in serious injury or death. (SG-10)



### Transporting the Tractor and Implement

Inherent hazards of operating the tractor and implement and the possibility of accidents are not left behind when you finish working in an area. Therefore, the operator must employ good judgement and safe operation practices when transporting the tractor and implement between locations. By using good judgement and following safe transport procedures, the possibility of accidents while moving between locations can be substantially minimized. *OPS-U- 0017*

# OPERATION

## Transporting the Mower

1. Make sure the stand tube is secured in the "up" position. If not, pull Clip and Pin (R) and slide Stand Tube (A) up. Secure with Pin (R) and clip.



Ops-666

2. Before folding, check clearance between tractor & cover frame. Fold back the front cover frame (H) and cover sheet. Fold front & rear cover under front cover frame and secure with tarp strap stored under center of rear cover. Attach to hole in center front cover frame.



Ops-667

**WARNING**

COVER SHEET HAS BEEN REMOVED IN THE PICTURE FOR ILLUSTRATION PURPOSES ONLY. NEVER OPERATE MOWER IF COVER IS NOT SECURED IN PLACE AND IN GOOD CONDITION.

**WARNING**

SECURE TRANSPORT LOCK BEFORE TRANSPORTING MOWER, OTHERWISE MOWER HEAD LIFT CYLINDER MAY LEAK DOWN RESULTING IN POSSIBLE INJURY OR DEATH TO BYSTANDERS.

## OPERATION

Before transporting the tractor and mower, idle the tractor engine, disengage the PTO and wait for all mower moving parts to come to a complete stop. Once all mower parts are completely stopped, raise the mower to transport height. **NOTE:** When raising the mower, maintain 1" clearance between the driveline and mower deck. If additional mower deck height is needed for safe transport, disconnect the driveline from the tractor and secure its end to the mower deck. The mower can then be raised to the maximum lift height. OPS-R-0033\_A



If the tractor's hydraulic pump is not independent of the tractor PTO, or if the tractor PTO has to be run to have hydraulic power, disconnect the mower driveline from the tractor PTO output shaft. Secure the driveline to the mower deck to prevent driveline damage or loss during transport. OPS-R-0034



Before transporting the tractor on a public roadway or boarding a trailer for transport, the tractor brake pedals should be locked together. Locking the pedals ensures that both wheels brake simultaneously while stopping, especially when making an emergency stop.

Use extreme caution and avoid hard applications of the tractor brakes when towing heavy loads at road speeds. Never tow the implement at speeds greater than 20 MPH (25 kph). OPS-U- 0018



OPERATION

# OPERATION

## Transporting on Public Roadways

Extreme caution should be used when transporting the tractor and implement on public roadways. The tractor must be equipped with all required safety warning features including a SMV emblem and flashing warning lights to alert drivers of the tractor's presence. Remember that roadways are primarily designed for automotive drivers and most drivers will not be looking out for you, therefore, you must look out for them. Check your side view mirrors frequently and remember that vehicles will approach quickly because of the tractor's slower speed. Be extremely cautious when the piece of equipment that you are towing is wider than the tractor tire width and/or extends beyond your lane of the road.

Make sure that a proper size safety tow chain is secured between the tractor and implement before entering a public road. OPS-U- 0019



Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)



The SMV (Slow-Moving Vehicle) emblem is universal symbol used to alert drivers of the presence of equipment traveling on roadways at a slow speed. SMV signs are a triangular bright orange with reflective red trim for both easy day and night visibility. Make sure the SMV sign is clean and visible from the rear of the unit before transporting the tractor and implement on a public roadway. Replace the SMV emblem if faded, damaged, or no longer reflective. OPS-U-0020



Op-43

Make sure that all tractor flashing warning lights, headlights, and brake/tail lights are functioning properly before proceeding onto public roads. While newer model tractors have plenty of lighting to provide warning signals and operating lighting, most older models are only equipped with operating lights. Consult an authorized tractor dealer for lighting kits and modifications available to upgrade the lighting on older tractor models. OPS-U- 0021



Op-595

# OPERATION

When operating on public roads, have consideration for other road users. Pull to the side of the road occasionally to allow all following traffic to pass. Do not exceed the legal speed limit set in your country for agricultural tractors. Always stay alert when transporting the tractor and implement on public roads. Use caution and reduce speed if other vehicles or pedestrians are in the area. OPSU- 0022



Op-596

Reduce speed before turning or applying the brakes. Ensure that both brake pedals are locked together when operating on public roads. OPS-U-0023



Op-25

## Hauling the Tractor and Implement

Before transporting a loaded tractor and implement, measure the height and width dimensions and gross weight of the complete loaded unit. Ensure that the load will be in compliance with the legal limits set for the areas that will be traveled through. OPS-U- 0024



Op - 46

# OPERATION

Use adequately sized and rated trailers and equipment to transport the tractor and implement. Consult an authorized dealer to determine the proper equipment required. Using adequately sized chains, heavy duty straps, cables and/or binders, securely tie down both the front and rear of the tractor utilizing the proper tie down locations as specified by the tractor manufacturer. OPS-U-0025



Op-47

Arrange the chains so that when tightened, the chains are pulling downward and against themselves. Carefully tighten the securing chains or other fasteners using boomer or binders to apply maximum tension. Use extreme care when attaching and removing the securing devices as the extreme tension involved when released has the potential to inflict serious injury.

While hauling the tractor and implement, make occasional stops to check that the tractor and implement have not moved or shifted and that the securing chains have maintained tension. If during transport a hard braking, sharp turning, or swerving action was performed, stop at the next safe location to inspect the security of the load. OPS-U-0026



Op - 48

# OPERATION

## OPERATION

## Troubleshooting Guide

Problem	Possible Cause	Remedy
The disk carrier bar vibrates too much during work	1. The nylon bushings of the joints in question are overworn or completely worn out. 2. The pins and/or respective bushings/bearings of the joints in question are overworn. 3. The outer conveyor is too slack	1. Replace the bushings. 2. Replace the worn-out parts and lubricate regularly. 3. Check that it is fastened correctly and check the nylon bushings
The disk carrier bar does not adapt correctly to uneven ground.	1. The height of the tractor coupling plate is not adjusted correctly. 2. The machine joints resist free rotation.	1. Readjust as specified in operations section (in particular check that both ball-and-socket joints are the same height above ground). 2. Clean and lubricate the parts in question.
The disk carrier bar is not raised parallel to the ground	1. The entire machine is leaning one side.	1. Check that both hoist ball-and-socket joints are at the same height above ground; the transverse slant of chain is not adjusted, correctly the chain to the correct length and fasten one of the circlips into slot.
Earth accumulates between two sliding blocks in the front part of the disk carrier bar	1. The ground is exceptionally wet; the bar presses to hard on the ground. 2. The disk carrier bar tilts too far forward.	1. Use the tractor hoist to raise the machine higher above the ground and then readjust the chain giving minimum height above ground. 2. Adjust the tilt of axle by moving turnbuckle on the third point.
Safety device often unhooks under impact.	1. The spring is not adjusted correctly.	1. Check the condition of the spring and if necessary, tighten the relevant screw very carefully (danger of unhooking when it receives blows that are too strong for the machine structure) until hooking occurs at reasonable intervals only.
The stubble is too high or too sparse.	1. The disk carrier bar does not tilt correctly.	1. Use turnbuckle to adjust the tilt.

## OPERATION

The stubble is not the same

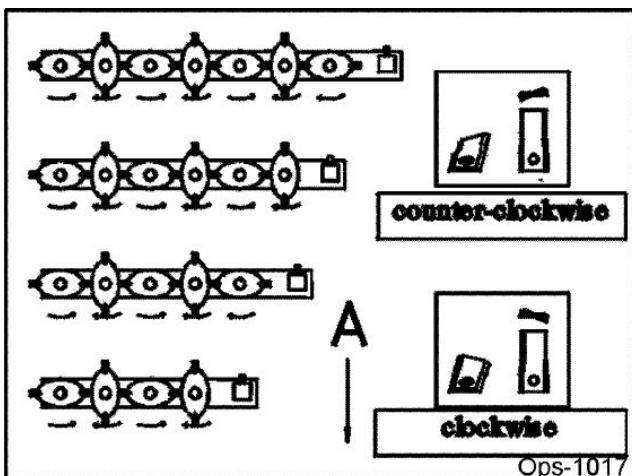
1. The disk carrier bar tilts too much.
2. The knives are over worn.
3. Power takeoff speed is insufficient.

1. Reduce the tilt of the disk carrier bar.
2. Replace the knives.
3. Increase power takeoff rotation speed up to, but not over, 540 revs/min.

The forge is pushed forward before being cut.

1. The ventilating effect of the knives is too strong.

1. Reduce power takeoff rotation speed and increase tractor forward movement speed.



# **5. MAINTENANCE SECTION**

Maintenance Section 5-1

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# MAINTENANCE

This section contains recommendations for regular maintenance of the machine, basing on company experience as well as suggestions by our customers.

These recommendations can be further integrated by contributions from our customers, for which we thank you very much in advance.

Careful and systematic servicing helps reduce maintenance costs and ensure efficient operation.

**If there is any trouble the operator shall stop the machine, identify the trouble and make repairs if necessary.**

If you use compressed air or water for cleaning the machine, wear suitable safety glasses or masks and keep people and animals away. Do not use any inflammable fluids.

During maintenance wear the suitable Protective Devices (safety shoes and gloves) and follow all relevant safety precautions.

It is recommended to check tightness of all screws and bolts, including those of the knives, **every 8 hours of work.**



BEFORE PERFORMING INSPECTIONS, MAINTENANCE OR ADJUSTMENTS OF THE MOWER, STOP THE TRACTOR ENGINE, REMOVE THE KEY, AND SECURE PARKING BRAKE. WAIT FOR ALL ROTATING MOTION OF THE MOWER TO STOP AND DISCONNECT THE DRIVELINE SHAFT.

BLOCK THE MOWER AND TRACTOR TO PREVENT MOVEMENT BEFORE PERFORMING ADJUSTMENTS OR MAINTENANCE.



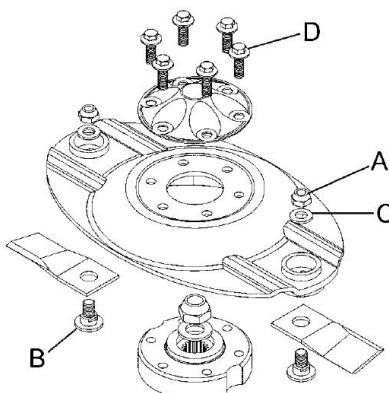
AFTER MAINTENANCE OR ADJUSTMENTS ARE COMPLETED, REMOVE ALL BLOCKS AND TOOLS USED IN MAINTENANCE OR ADJUSTMENTS. FAILURE TO CLEAR THE AREA AROUND THE MOWER BEFORE OPERATION COULD RESULT IN OBJECTS BEING THROWN TOWARD THE OPERATOR OR BYSTANDERS.

## Disk and Blade Maintenance

For longer service file, carefully check discs, blades and bolts daily. When replacements are necessary, use only Rhino recommended parts. Use of parts not approved by Rhino could void the warranty. Worn, bent or blunt blades will require more power. To cut efficiently, replace worn or damaged blades as soon as possible. To replace the blade, remove the Self-Locking Nut (A), Spring Washer (C), remove the Blade Bolt (B). Check the condition of the bolt and nut. If either are damaged, replace with new parts. The self-locking nut must be threads. Torque the blade bolt to 48 ft./lbs.



During operation, the blades will reach a speed of 3000 RPM. It is very important that the nut and bolt be in good condition and torque to 48 ft./lbs.



A BENT BLADE CAN SERIOUSLY AFFECT THE OPERATION OF THE MACHINE AND THROW MORE OBJECTS. REPLACE BENT BLADES AT ONCE! ALWAYS REPLACE BLADES AND HARDWARE IN PAIRS TO MAINTAIN BALANCE.

# MAINTENANCE

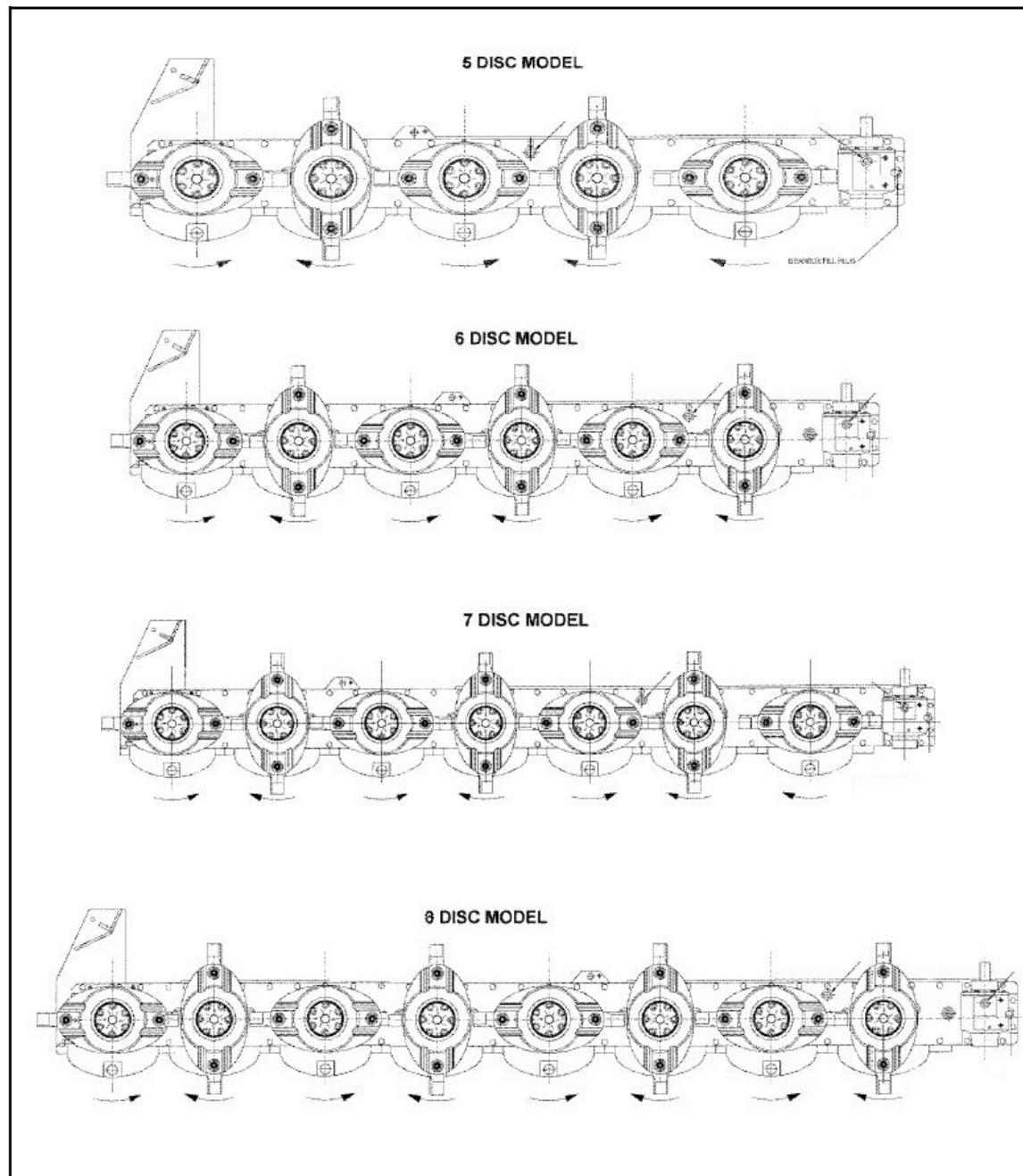
## Disc Replacement

Reinstalling Disc Assemblies: Disc should be installed on the spline shaft as shown in Image Mnt-D-0002 for different model. The cutting edges of the blade should face the disc rotation direction. Blades are reversible.



ALWAYS REPLACE BLADES AND BLADE FASTENERS IN PAIRS TO MAINTAIN BALANCE. VIBRATION MAY LEAD TO COMPONENT FAILURE.

MAINTENANCE



To remove the disc, remove the 6 bolts (D), See Image **Mnt-D-0001**. To remove the hub (E), remove the locknut (F) and the conical washer (G). Pull the hub upward evenly to remove. Gearpullers may be required to remove hub from spline shaft. See Image **MntP-D-0001**.

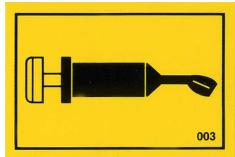
# MAINTENANCE

## Lubrication of Mechanical Components

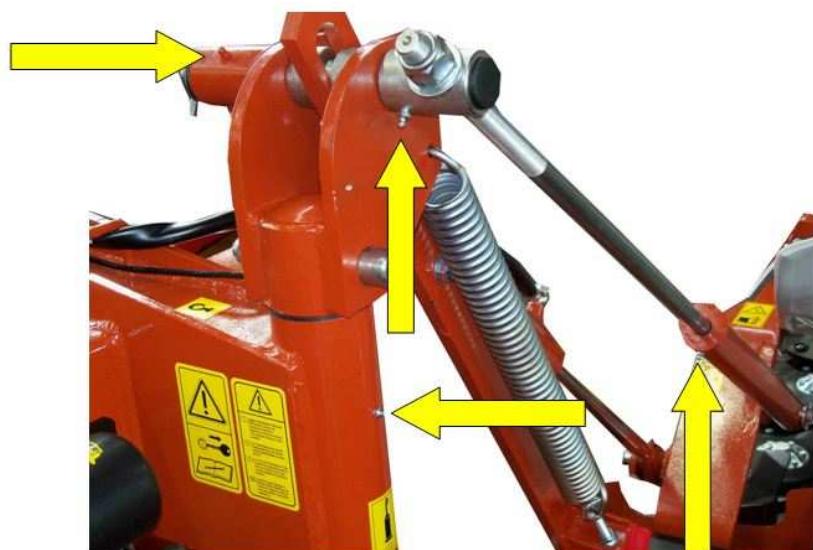
**Before operation and every 8 hours of work**, lubricate all bearings, pins and the telescopic rod of the PTO joint using quality grease.

When the mower is not used for a longer period, clean and grease the drive shaft.  
In winter and when temperature is very low grease pipes to protect plastics.

Clean debris from the lubricators heads before injecting lubricating grease.  
Grease following point with lithium grease:



All models have **4** points to be greased:



### **WARNING**

Before performing an inspection, stop the engine of the tractor, remove the ignition key and disengage PTO-shaft transmission.

Collect used oil and bring it to the Oil Collection Centre. Do not pollute the environment.

### **Lubrication of the cutter bar**

Change oil in the bar **after the first 10/15 hours of work**.

Then replace oil **every 200 hours of work** and at least once a year. When the mower is used for a long period, check oil level on a daily basis and add oil if necessary.

To check oil level in the cutter bar let it set in vertical position for 5 minutes to allow time for oil to flow to the bottom of the bar.

Lock the cutter bar in the vertical position using the hydraulic locking device.

# MAINTENANCE

Remove the vent plug **(A)** shown in the picture, the oil level must be with line on the dipstick. If it is below line on the dipstick add oil.

Use oil type **EP 320** in the following quantity:

- Mower with 5 discs (AGM52) 4,20 l
- Mower with 6 discs (AGM62) 5,20 l
- Mower with 7 discs (AGM72) 6,20 l
- Mower with 8 discs (AGM82) 7,20 l



## Lubrication of gearbox

In order to check oil level, stop the machine and be sure it is set in horizontal position.

Use oil type **EP 320**. Gearbox capacity is around 0,70 l.



Change the oil in the gearbox **after the first 10/15 hours of work.**

Then replace oil **every 500 hours of work** and at least once a year. When the mower is used for a long period, check oil level on a daily basis and add oil if necessary.

Check oil level with the dipstick on the vent plug



# MAINTENANCE

## Drive Belts

Drive belts must be properly tensioned at all times to avoid excessive flopping and slipping.



### **New belts**

If belts are new check tightness of the belt at least after **2 hours of work**.

### **Used belts**

If belts have been used for more than 24 hours, check belts wear and if necessary retighten them.

### **Belts adjustment**

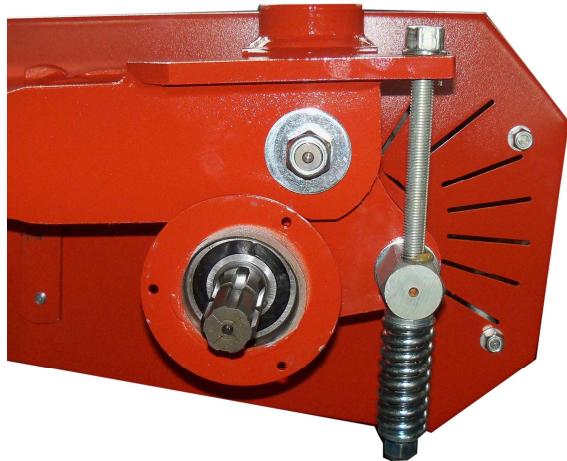
In order to tension or maintain belts tension loosen the nut (A) and tighten the nut (B).



# MAINTENANCE

## Belt tension check

To check belts' state of tension is necessary to check the compression level of the spring. When spring's length is 1-1.5cm over the pack length, it's necessary to re-adjust belt's tension.



## Belt replacement



Never replace one belt only. When a belt is worn, always replace all belts.

In order to replace belts, remove the safety guard by loosening the tightening screw, loosen linkage check rods, remove belts and replace them with new ones.

Use belt type *ROFLEX TS SPB 2580 L<sub>d</sub>*.



After replacement of the belt reposition the safety guard and tighten bolts.

MAINTENANCE

# MAINTENANCE

## Curtain Replacement

**Before any operation** check wear on the curtain and on the attaching devices. Replace worn curtain.

**Use exclusively curtains supplied by RHINO.**

In order to remove the damaged curtain, loosen the belts connected to the frame of the cutter unit after raising the front part of the frame of the cutter unit. For raising the frame loosen the clamping screw (A) of the frame.



Fold back the curtain and secure it with belts.



# MAINTENANCE

## Further Troubleshooting

In the event of excessive vibrations check wear on the knives and the cutter-holder discs, check tightness of all bolts and nuts, check lubrication of the gearbox and of the oil bath unit in the cutter bar.

Excessive vibration can lead to prolonged noise exposure and affect performance, since mechanical parts are subject to more stress.

**In the event of prolonged vibration contact the service department of RHINO or its dealer.**

## Storage

To prepare your Disc Mower for storage:

1. Clean the mower of all dirt and debris.
2. Drain the oil from the cutter bar and replace with fresh SAE HD90 lube oil. (See Lubrication Instructions)
3. Store the mower on a clean, dry surface in the down (working) position.
4. Loosen the drive belts or remove the belts and store in a dry place.
5. Lubricate all points and slides before storage; this prevents corrosion.

**NOTE:** Now would be a good time to replace all damaged parts in preparation for the next cutting season.



NEVER DISCONNECT MOWER FROM TRACTOR WITHOUT CUTTER BAR IN LOWERED TO (OPERATING) POSITION.

## Proper Torque Chart for Fasteners

Because of the severe operating conditions, correct bolt torque is very important. An improperly torqued bolt can be easily shaken loose or broken by the vibrations. When replacing bolts, always use the same grade of bolt as used originally. Use this chart as a guide to tightening all bolts. Torque values listed are for general use only.

RECOMMENDED TORQUE IN FOOT POUNDS UNLESS OTHERWISE STATED IN THE MANUAL\*

**NOTE:** These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphited or molydisulphide greases or other extreme pressure lubricants are used. This applies to both UNF fine and UNC coarse threads.

Proper Torque Values for Standard Bolts		
Bolt Diameter	Head Marking Three Lines Grade Five	Head Marking Six Lines Grade Eight
	Pound - Foot Value Dry	Pound - Foot Value Dry
1/4"	7	10
5/16"	15	22
3/8"	26	39
7/16"	42	60
1/2"	64	88
9/16"	100	134
5/8"	128	180
3/4"	227	320
7/8"	365	515
1"	547	772

To get Newton-Meters multiply pound-foot of torque by 1.356

Bolt Diameter	Proper Torque Values for Metric Bolts			
	4.6 Head Marking 4.6	8.8 Head Marking 8.8 or 9.8	10.9 Head Marking 10.9	12.9 Head Marking 12.9
Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry
6mm	3	7	9	10
8mm	6.2	16	23	24
10mm	12	32	45	47
12mm	21	55	79	81
14mm	34	88	126	130
16mm	53	137	196	202
18mm	73	189	270	279
20mm	104	267	382	394
22mm	141	364	520	537
24mm	179	461	660	680
27mm	262	676	968	998
30mm	355	917	1312	1353

# RHINO

## LIMITED WARRANTY

### 1. LIMITED WARRANTIES

- 1.01. Rhino warrants for one year from the purchase date to the original non-commercial, governmental, or municipal purchaser ("Purchaser") and warrants for six months to the original commercial or industrial purchaser ("Purchaser") that the goods purchased are free from defects in material or workmanship.
- 1.02. Manufacturer will replace for the Purchaser any part or parts found, upon examination at one of its factories, to be defective under normal use and service due to defects in material or workmanship.
- 1.03. This limited warranty does not apply to any part of the goods which has been subjected to improper or abnormal use, negligence, alteration, modification, or accident, damaged due to lack of maintenance or use of wrong fuel, oil, or lubricants, or which has served its normal life. This limited warranty does not apply to any part of any internal combustion engine, or expendable items such as blades, shields, guards, or pneumatic tires except as specifically found in your Operator's Manual.
- 1.04. Except as provided herein, no employee, agent, Dealer, or other person is authorized to give any warranties of any nature on behalf of Manufacturer.

### 2. REMEDIES AND PROCEDURES.

- 2.01. This limited warranty is not effective unless the Purchaser returns the Registration and Warranty Form to Manufacturer within 30 days of purchase.
- 2.02. Purchaser claims must be made in writing to the Authorized Dealer ("Dealer") from whom Purchaser purchased the goods or an approved Authorized Dealer ("Dealer") within 30 days after Purchaser learns of the facts on which the claim is based.
- 2.03. Purchaser is responsible for returning the goods in question to the Dealer.
- 2.04. If after examining the goods and/or parts in question, Manufacturer finds them to be defective under normal use and service due to defects in material or workmanship, Manufacturer will:
  - a)Repair or replace the defective goods or part(s) or
  - b)Reimburse Purchaser for the cost of the part(s) and reasonable labor charges (as determined by Manufacturer) if Purchaser paid for the repair and/or replacement prior to the final determination of applicability of the warranty by Manufacturer.

The choice of remedy shall belong to Manufacturer.

- 2.05. Purchaser is responsible for any labor charges exceeding a reasonable amount as determined by Manufacturer and for returning the goods to the Dealer, whether or not the claim is approved. Purchaser is responsible for the transportation cost for the goods or part(s) from the Dealer to the designated factory.

### 3. LIMITATION OF LIABILITY.

- 3.01. MANUFACTURER DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES WITH RESPECT TO THE GOODS INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- 3.02. MANUFACTURER MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUITABILITY FOR USE OF THE GOODS.
- 3.03. EXCEPT AS PROVIDED HEREIN, MANUFACTURER SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO PURCHASER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS, OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY THE GOODS INCLUDING, BUT NOT LIMITED TO, ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE GOODS OR ANY BREACH OF THIS WARRANTY. NOT WITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, MANUFACTURER'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY PURCHASER OR OTHERS SHALL NOT EXCEED THE PRICE OF THE GOODS.
- 3.04. NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS WARRANTY OR TRANSACTIONS UNDER THIS WARRANTY MAY BE BROUGHT MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.

### 4. MISCELLANEOUS.

- 4.01. Proper Venue for any lawsuits arising from or related to this limited warranty shall be only in Guadalupe County, Texas.
- 4.02. Manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.03. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.04. Applicable law may provide rights and benefits to purchaser in addition to those provided herein.

### KEEP FOR YOUR RECORDS

ATTENTION: Purchaser should fill in the blanks below for his reference when buying repair parts and/or for proper machine identification when applying for warranty.

Rhino Implement Model\_\_\_\_\_

Serial Number\_\_\_\_\_

Date Purchased\_\_\_\_\_

Dealer\_\_\_\_\_

ATTENTION:  
READ YOUR OPERATOR'S MANUAL

**RHINO®**

1020 S Sangamon Ave.  
Gibson City, IL 60936  
800-446-5158

Email: [parts@servis-rhino.com](mailto:parts@servis-rhino.com)





## TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

### REQUIRED OF THE OWNER:

1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
2. Provide Seat belts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seat belt while the tractor is moving; and
4. Ensure that each employee tightens the Seat belt sufficiently to confine the employee to the protected area provided by the ROPS

### REQUIRED OF THE OPERATOR:

1. Securely fasten seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going - especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly - no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by the tractor manufacturer.
9. When the tractor is stopped, set brakes securely and use park lock, if available.

- Keep children away from danger all day, every day...
- Equip tractors with rollover protection (ROPS) and keep all machinery guards in place...
- Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.

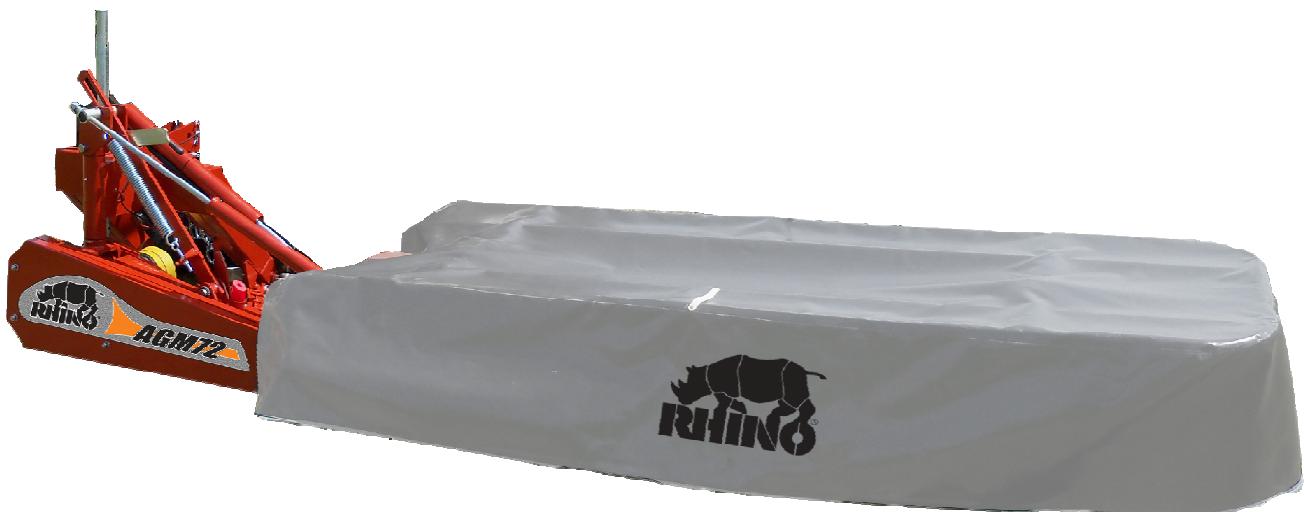




# DISC MOWER

AGM52, AGM62, AGM72,  
& AGM82 Disc Mower

## LIST OF PARTS



### RHINO®

1020 S. Sangamon Ave.  
Gibson City, IL 60936  
800-446-5158  
Email: [parts@servis-rhino.com](mailto:parts@servis-rhino.com)



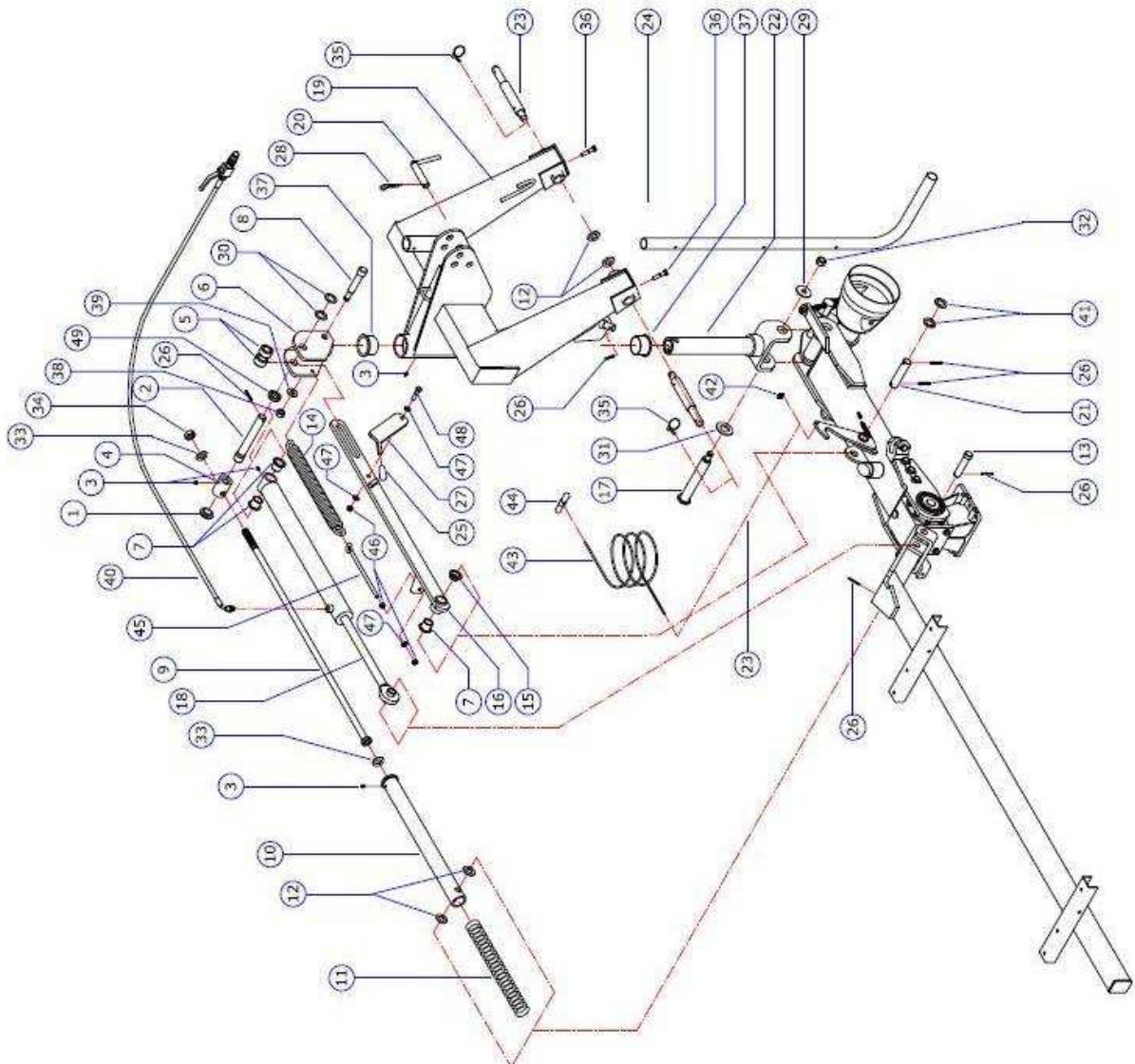
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# LIST OF PARTS

## LIST OF PARTS

T. 1



# LIST OF PARTS

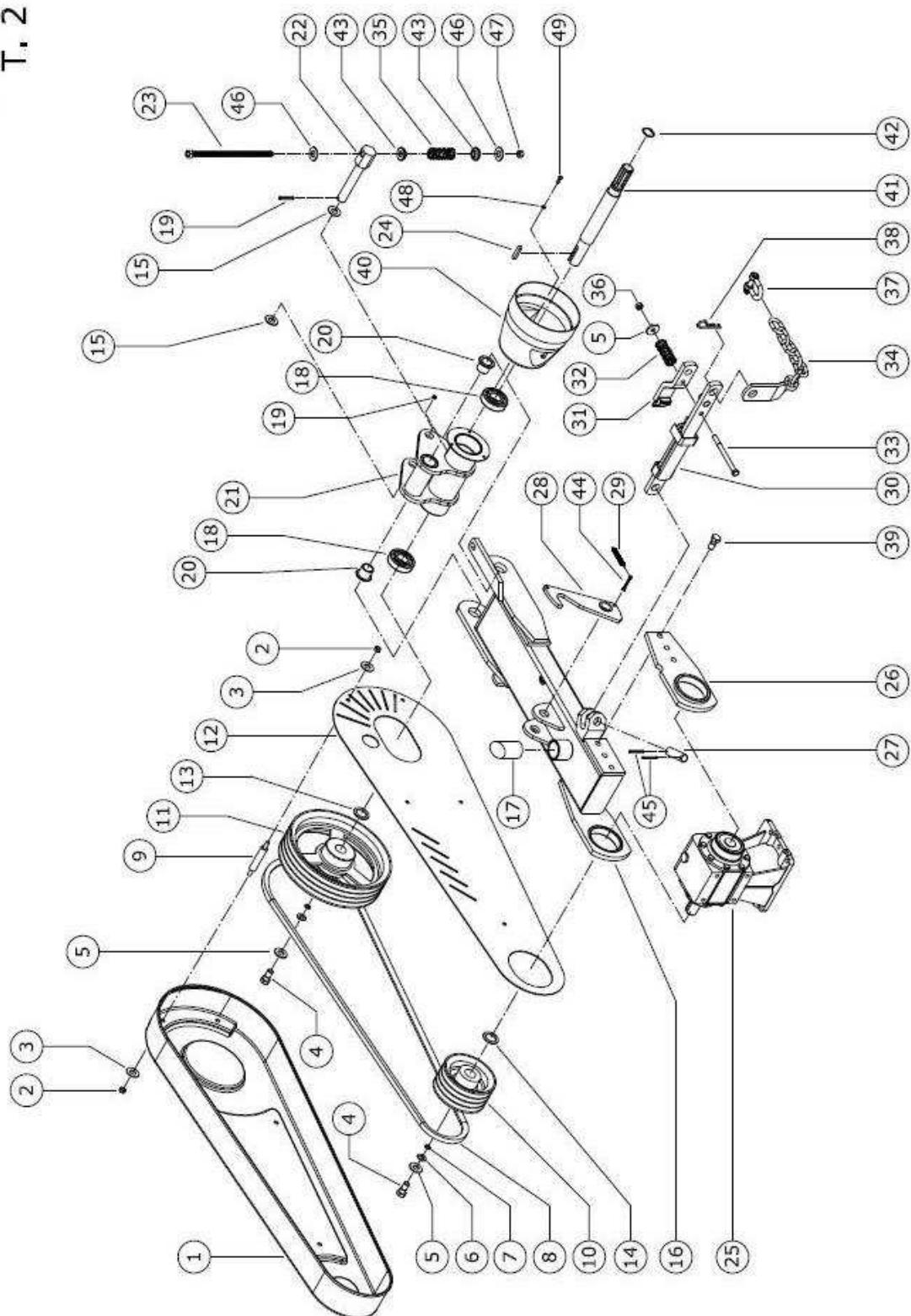
## LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787076	PLASTIC CAP	1			1	
00787077	PIN ATTACHMENT CYLINDER	2			1	
8382	GREASE NIPPLE M8X1	3			4	
00787078	BUSHING FOR SUP. TURNBUCKLE ST	4			1	
00787079	SPACER BUSHING	5			2	
00787080	HEADGEAR ATTACHMENT	6			1	
00787081	LONG PLASTIC BUSHING	7			3	
00787082	PIN FOR HEADGEAR	8			1	
00787083	TURNBUCKLE STAFF	9			1	
00787084	TURNBUCKLE STAFF COVER	10			1	
00787085	SPRING FOR TURNBUCKLE STAFF	11			1	
00776217	WASHER, FLAT M24	12			4	
00787086	PIN	13			1	
00787087	SPRING FOR LIGHTENING LIFTING SYSTEM	14			1	
00787088	SHORT PLASTIC BUSHING	15			1	
00787089	TURNBUCKLE SUPPORT	16			1	
00787090	LOCKING PIN	17			1	
00787091	HYDRAULIC CYLINDER	18			1	
00787092	3 POINT FRAME	19			1	
00787093	PIN FOR 3PT	20			1	
00787094	PIN FOR LIFTING SYSTEM ATTACHMENT	21			1	
00787095	JOINT FOR ATTACHMENT TO FRAME	22			1	
00787096	LOWER LINK PIN	23			1	
00787097	STAND	24			1	
00787103	KNOB FOR UNCOUPLING LEVER	25			1	
703516W	ROLL PIN	26			4	
00787105	LEVER FOR UNCOUPLING	27			1	
3638401	R PIN	28			1	
00787327	WASHER	29			1	
00787328	WASHER	30			2	
00787329	WASHER	31			1	
701116C	SELFLOCKING NUT M20 (NYLON INSERT)	32			1	
00776217	WASHER, FLAT M24	33			2	
700232C	NUT M22X2.5	34			1	
00787330	SNAP PIN	35			2	
00755901	SCREW M12X50	36			2	
00787098	PLASTIC BUSHING	37			2	
7001115C	SELFLOCKING NUT M18	38			1	
00787331	WASHER 19-40X6	39			1	
00787099	HYDRAULIC RUBBER HOSE	40			1	
00787332	WASHER 31-47X5	41			2	
00787100	ROPE CLAMP	42			1	
00787101	ROPE	43			1	
00787102	KNURL FOR ROPE	44			1	
00787134	CONNECTING ROD WITH EYELET	45			1	
701112C	SELFLOCKING NUT M12	46			3	
701513C	WASHER, FLAT M12	47			3	
00765692	SCREW M12X45	48			1	
00787104	SPACER	49			1	
00776031	CANISTER,MANUAL (not drawn)	50			1	
00787389	MANUAL (not drawn)	51			1	

# LIST OF PARTS

## LIST OF PARTS

T. 2



# LIST OF PARTS

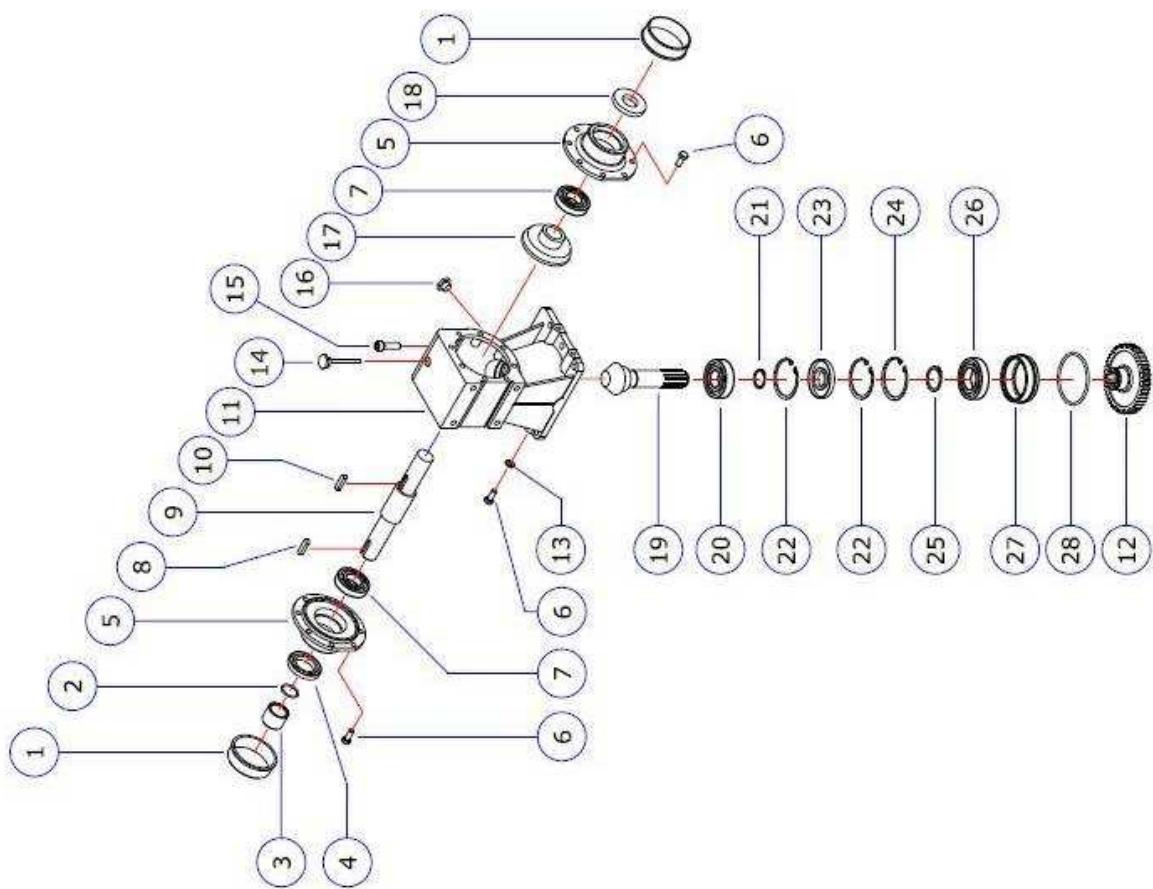
PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787106	METAL SHEET FORE GUARD	1			1	
701111C	SELFLOCKING NUT M10	2			10	
701513C	WASHER, FLAT M12	3			10	
02959661	SCREW M12x35	4			2	
00787333	CUT WASHER 13-40X6	5			2	
08787334	WAVED WASHER 13-24X1	6			2	
70209C	SERRATED WASHER A12	7			2	
00787107	BELT	8			1	
00787108	THREADED PIN M10	9			5	
00787109	SMALL PULLEY	10			1	
00787110	BIG PULLEY	11			1	
00787111	METAL SHEET REAR GUARD	12			1	
00787335	WASHER, SHIM	13			1	
00787335	WASHER, SHIM	14			1	
701520C	WASHER, FLAT M27	15			2	
00787112	FRAME SUPPORT	16			1	
00787113	RUBBER PAWL	17			1	
00787114	BEARING, BALL - SEALED	18			2	
70118C	SELFLOCKING NUT M6	19			3	
00787115	PLASTIC BUSHING	20			2	
00787116	MAIN PIVOT	21			1	
00787117	HEX PIN	22			1	
00787118	THREADED TURNBUCKLE	23			1	
710850	KEY	24			1	
00787119	GROUP COMPLETE	25			1	
00787120	JOINT VANE	26			1	
00787121	SECURITY PIN	27			1	
00787122	SAFETY HOOK	28			1	
00787123	SAFETY HOOK SPRING	29			1	
00787124	PRINC SAFETY CLICK	30			1	
00787125	SECOND. SAFETY CLICK	31			1	
00787126	SAFETY SPRING	32			1	
610717C8	SCREW M12X150	33			1	
00787127	CHAIN ATTACHMENT	34			1	
00787128	SPRING FOR BACKSTAND	35			1	
701112C	SELFLOCKING NUT M12	36			1	
00787130	ZINC CRICKET	37			1	
3638401	R PIN	38			1	
00756373	SCREW M16X35	39			3	
00787131	SECURITY GUARD	40			1	
00787132	TRANSMISSION SHAFT	41			1	
00787336	INTERNAL RETAINING	42			1	
00787133	RUBBER PAWL	43			2	
70497	COTTER PIN DIA 5X50	44			1	
703416	ROLL PIN 6X50	45			1	
00755940	WASHER, FLAT M14	46			1	
701113C	SELFLOCKING NUT M14	47			1	
70159C	WASHER, FLAT M6	48			3	

## LIST OF PARTS

# LIST OF PARTS

## LIST OF PARTS

T. 3



# LIST OF PARTS

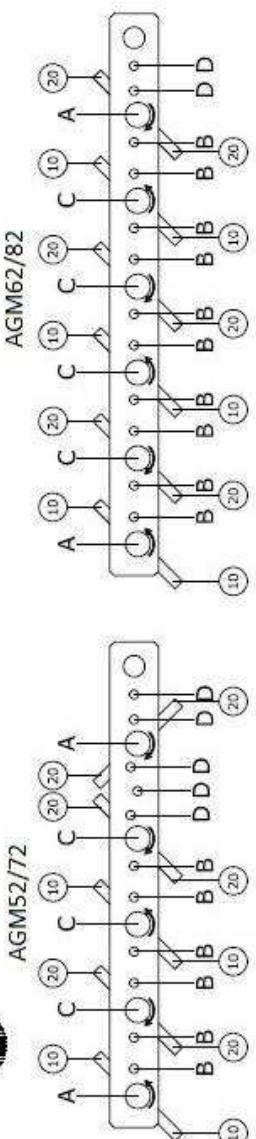
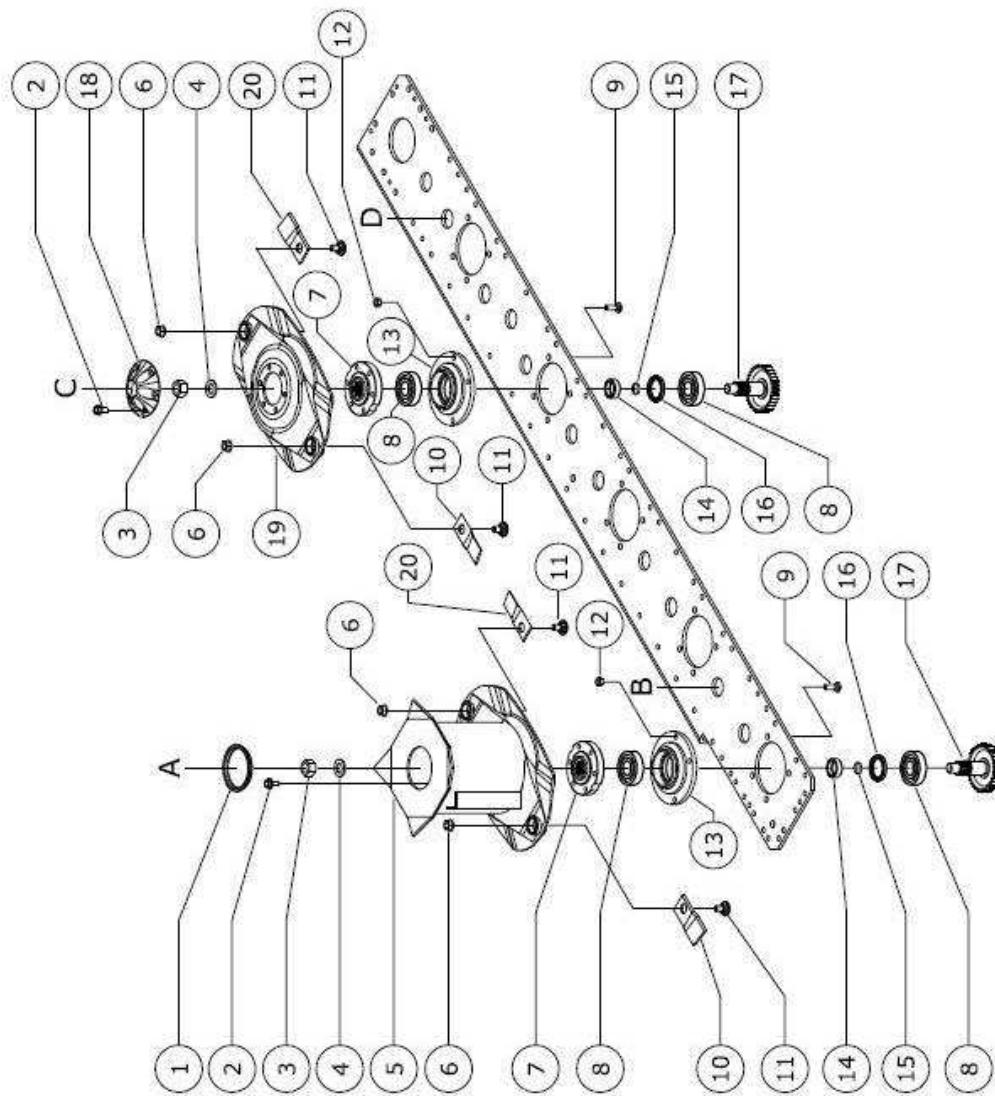
## LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787129	PLASTIC BUSHING	1			2	
00787135	RING OR	2			1	
00787136	OR BUSHING	3			1	
3236801	OIL SEAL 45X72X10	4			2	
00787137	COVER FLANGE	5			18	
00751688	SCREW M10X25	6			2	
00754459	BEARING	7			2	
710850	KEY	8			1	
00787138	TRANSMISSION SHAFT	9			1	
710840	KEY	10			1	
	GEARBOX	11			1	
00787139	FLUTED GEAR	12			1	
701512C	WASHER, FLAT M10	13			2	
00787140	STOPPER WITH AUCTION 3/8 GAS	14			1	
708111C12	SHCS M12X50	15			8	
00772827	STOPPER VENT OIL 3/8 Gas	16			1	
00787141	CONICAL CROWN Z20	17			1	
001724	OIL SEAL 35X72X10	18			1	
00787142	PINION WITH SHAFT Z9	19			1	
00787114	BEARING	20			1	
3238201	EXTERNAL RETAINING	21			1	
00753224	INTERNAL RETAINING	22			2	
00787143	RETAINING RING 35X80X10	23			1	
00786146	INTERNAL RETAINING	24			1	
00765702	EXTERNAL RETAINING	25			1	
00764417	BEARING	26			1	
00787144	BUSH HOLD BEARING	27			1	
00787145	RING OR	28			1	

# LIST OF PARTS

## LIST OF PARTS

T. 4



# LIST OF PARTS

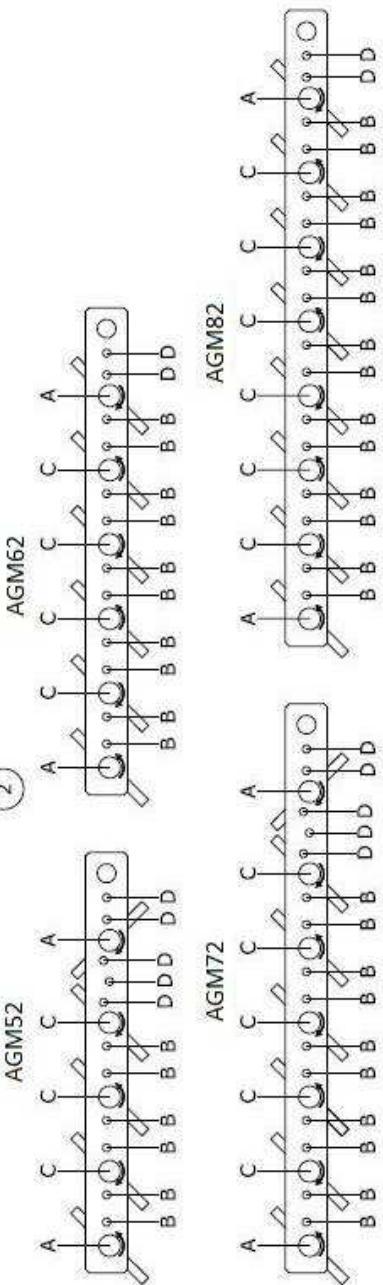
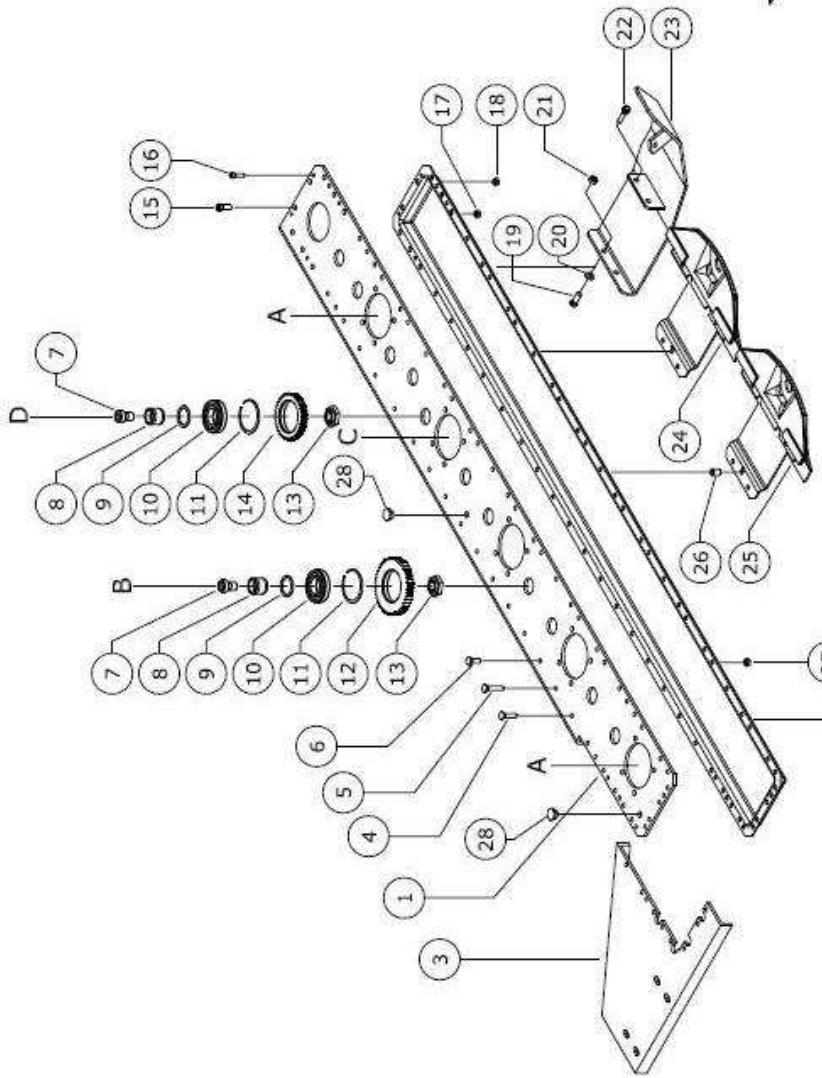
PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787163	PLASTIC CAP	1	2	2	2	2
00787337	SPECIAL FLANGE SCREW M10X20	2	30	36	42	48
701127C	SELFLOCKING NUT M20X1.5	3	5	6	7	8
701517C	WASHER, FLAT M20	4	5	6	7	8
00787164	DISC WITH DRUM WITH CONVOY	5	2	2	2	2
00787338	EXAGONAL NUT M12, WITH FLANGE	6	10	12	14	16
00787165	BUSHING	7	5	6	7	8
00770102	BEARING	8	10	12	14	16
00787339	SPECIAL SCREW	9	20	24	28	32
00787166	RIGHT KNIFE	10	6	6	8	8
00787168	SCREW FOR KNIFE	11	10	12	14	16
701111C	SELFLOCKING NUT M10	12	20	24	28	32
00787169	BEARING SUPPORT FLANGE	13	5	6	7	8
00787170	SPACER BUSHING	14	5	6	7	8
00787171	RING OR	15	5	6	7	8
00758123	OIL SEAL 40X56X8	16	5	6	7	8
00787172	ROTOR GEAR WITH SHAFT	17	5	6	7	8
00787173	DISC FLANGE COVER	18	3	4	5	6
00787174	DISC	19	3	4	5	6
00787167	LEFT KNIFE	20	4	6	6	8

**LIST OF PARTS**

## LIST OF PARTS

## LIST OF PARTS

T. 5



# LIST OF PARTS

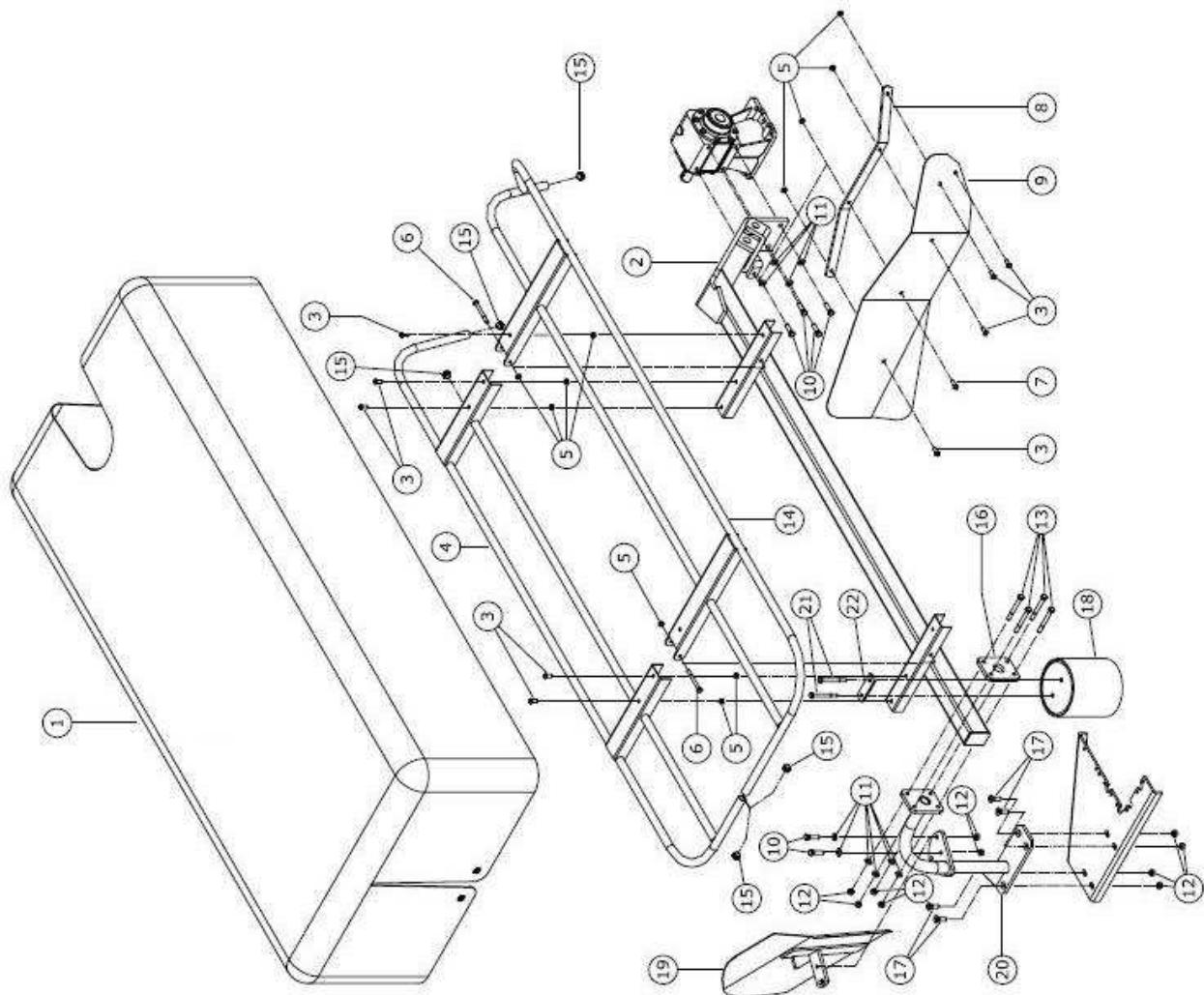
## LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787175	TUB COVER	1	1	0	0	0
00787176	TUB COVER	1	0	1	0	0
00787177	TUB COVER	1	0	0	1	0
00787178	TUB COVER	1	0	0	0	1
00787179	TUB BOTTOM	2	1	0	0	0
00787180	TUB BOTTOM	2	0	1	0	0
00787181	TUB BOTTOM	2	0	0	1	0
00787182	TUB BOTTOM	2	0	0	0	1
00787183	SUPPORT BRACE	3	1	1	1	1
00787339	SPECIAL SCREW	4	38	44	36	48
00787340	SPECIAL SCREW	5	30	36	56	62
00787341	SPECIAL SCREW	6	5	6	7	8
00787342	SPECIAL SCREW	7	11	12	15	16
00787184	BUSH HOLD BEARING	8	11	12	15	16
00787343	WASHER	9	11	12	15	16
00772851	BEARING	10	11	12	15	16
00753224	INTERNAL RETAINING	11	11	12	15	16
00787185	FREE GEAR Z45	12	6	10	10	14
00787186	SPECIAL NUT	13	11	12	15	16
00787187	FREE GEAR	14	5	2	5	2
708110C12	SHCS M12X45	15	8	8	8	8
02967532	SHCS M8X25	16	4	4	4	4
700219C	HEX NUT M12	17	8	8	8	8
00755934	HEX NUT M8	18	4	4	4	4
00756026	SCREW M12x30	19	2	2	2	2
701513C	WASHER, FLAT M12	20	2	2	2	2
701112C	SELFLOCKING NUT M12	21	2	2	2	2
00787337	SPECIAL FLANGE SCREW M10X25	22	2	2	2	2
00787188	INTERNAL SLIDE PLATE	23	1	1	1	1
00787189	ASYMMETRICAL SLIDE PLATE - SKIO	24	2	1	2	1
00787190	SYMMETRICAL SLIDE PLATE - SKID	25	3	5	5	7
00787191	SPACER BUSHING	26	5	6	7	8
00787344	HEXAGONAL NUT M10	27	73	86	99	118
00787192	OIL CAP 3/8 GAS	28	2	2	2	2

# LIST OF PARTS

## LIST OF PARTS

T. 6



# LIST OF PARTS

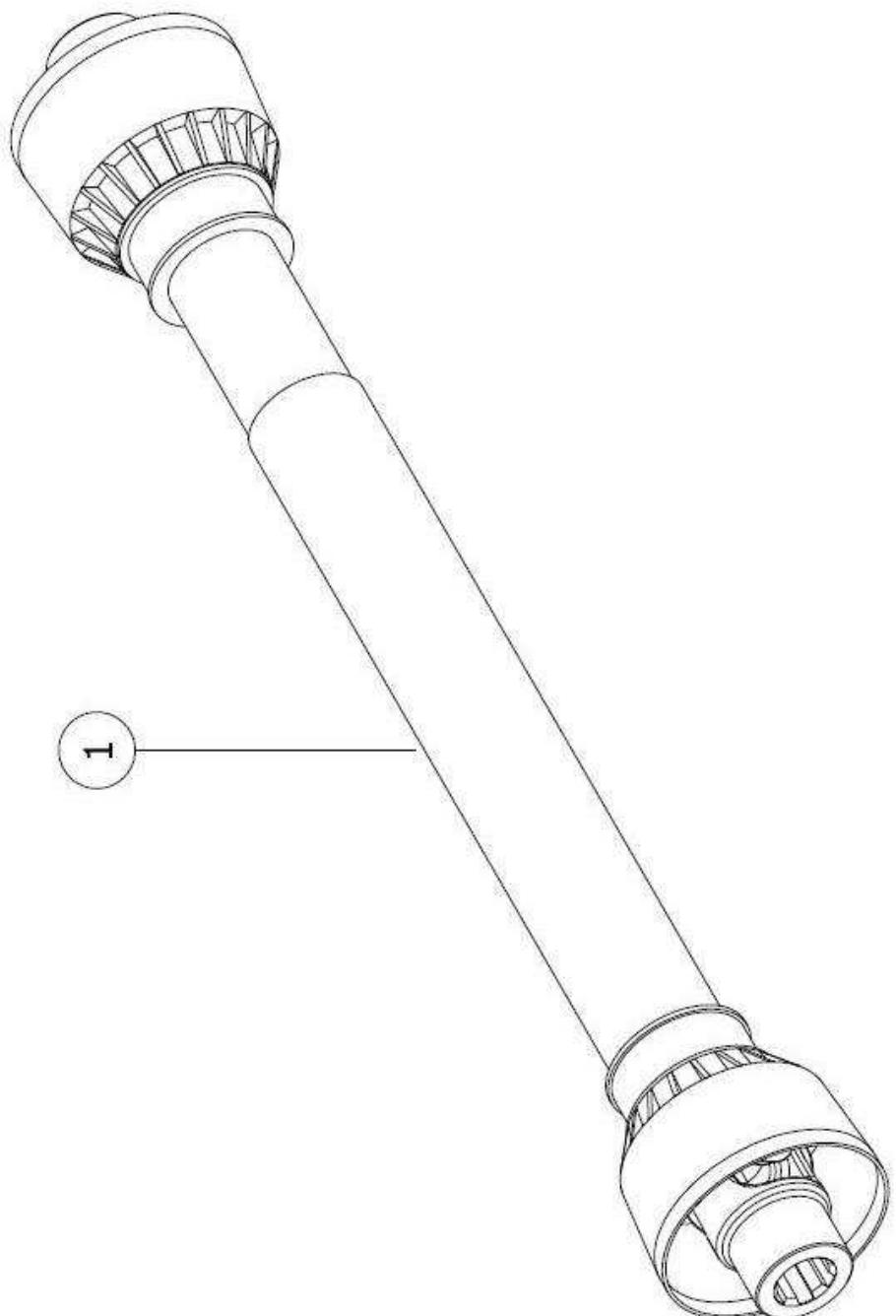
## LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787193	SAFETY CURTAIN 210	1	1	0	0	0
00787194	SAFETY CURTAIN 245	1	0	1	0	0
00787195	SAFETY CURTAIN 285	1	0	0	1	0
00787196	SAFETY CURTAIN 320	1	0	0	0	1
00787197	UPPER FRAME 210	2	1	0	0	0
00787198	UPPER FRAME 245	2	0	1	0	0
00787199	UPPER FRAME 285	2	0	0	1	0
00787200	UPPER FRAME 320	2	0	0	0	1
00787345	SCREW M10X25	3	8	8	8	8
00787201	REAR FRAME 210	4	1	0	0	0
00787202	REAR FRAME 245	4	0	1	0	0
00787203	REAR FRAME 285	4	0	0	1	0
00787204	REAR FRAME 320	4	0	0	0	1
701111C	SELFLOCKING NUT M10	5	7	7	7	7
610612C8	SCREW M8X95	6	2	2	2	2
00787346	SCREW M10X30	7	1	1	1	1
00787205	SWATH REINFORCEMENT BAR	8	1	1	1	1
00787206	SWATH BOARD	9	1	1	1	1
00765692	SCREW M12X45	10	6	6	6	6
701513C	WASHER, FLAT M12	11	10	10	10	10
701112C	SELFLOCKING NUT M12	12	10	10	10	10
610712C8	SCREW M12X100	13	4	4	4	4
00787207	FRONT FRAME 210	14	1	0	0	0
00787208	FRONT FRAME 245	14	0	1	0	0
00787209	FRONT FRAME 285	14	0	0	1	0
00787210	FRONT FRAME 320	14	0	0	0	1
00787211	SAFETY CURTAIN CAP	15	4	4	4	4
00787212	LATERAL FRAME SUPPORT ATTACHMENT	16	1	1	1	1
71575C10	SCREW M12X40	17	4	4	4	4
00787213	DRUM	18	1	1	1	1
00787214	EXTERNAL SWATHER	19	1	1	1	1
00787215	SUPPORT - MAIN FRAME (OUTER)	20	1	1	1	1
610613C8	SCREW M10X100	21	2	2	2	2
00787216	FLAT ROD	22	1	1	1	1

## LIST OF PARTS

### LIST OF PARTS

T. 7



# LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY			
			AGM52	AGM62	AGM72	AGM82
00787217	ASY DRIVELINE - 540RPM	1	1	0	0	0
00787351	ASY DRIVELINE - 540RPM	1	0	1	1	1

LIST OF PARTS

## LIST OF PARTS

# LIST OF PARTS



ANTI-WEAR SLIDE KIT



CUTTING HEIGHT KIT



TRIPLE BLADE DISC



TRIPLE BLADE DISC WITH DRUM CONVOY

# LIST OF PARTS

PART N°	DESCRIPTION	POS.	QUANTITY
00787231	KIT,ANTI-WEAR SKID PLATE	-	1 for Disc
00787347	PLATE,ANTI-WEAR SLIDE SKID	-	1 for Kit
00787345	SCREW,SCKT BUT HD 10 X 25 PL10	-	2 for Kit
701111C	NUT MET TLE (THIN) 10-P1.5 PL	-	2 for Kit
00787232	KIT,CUTTING HEIGHT CONVERSION	-	1 for Machine
00787348	WDMT,CUTTING HEIGHT PLATE	-	2 for Kit
00787344	NUT MET FLANGE 10-P1.50 PL	-	4 for Kit
701111C	NUT MET TLE (THIN) 10-P1.5 PL	-	4 for Kit
00787228	KIT,3 BLADE CONVERSION - 6 DISC	-	1 for Machine (only AGM62)
00787349	WDMT,(3) BLADE DISC	-	4 for Kit
00787350	WDMT,(3) BLADE OUTER DISC HAT	-	2 for Kit
00787338	NUT MET FLANGE 12-P1.75 PL	-	6 for Kit
00787166	BLADE,RH - CW	-	3 for Kit
00787168	BOLT,BLADE	-	6 for Kit
00787167	BLADE,LH - CCW	-	3 for Kit
00787230	KIT,3 BLADE CONVERSION - 8 DISC	-	1 for Machine (only AGM82)
00787349	WDMT,(3) BLADE DISC	-	6 for Kit
00787350	WDMT,(3) BLADE OUTER DISC HAT	-	2 for Kit
00787338	NUT MET FLANGE 12-P1.75 PL	-	8 for Kit
00787166	BLADE,RH - CW	-	4 for Kit
00787168	BOLT,BLADE	-	8 for Kit
00787167	BLADE,LH - CCW	-	4 for Kit

LIST OF PARTS



**DISC MOWER  
AGM52, AGM62, AGM72 & AGM82**

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AGM 52/62/72/82  
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